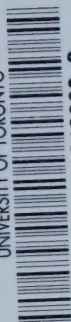


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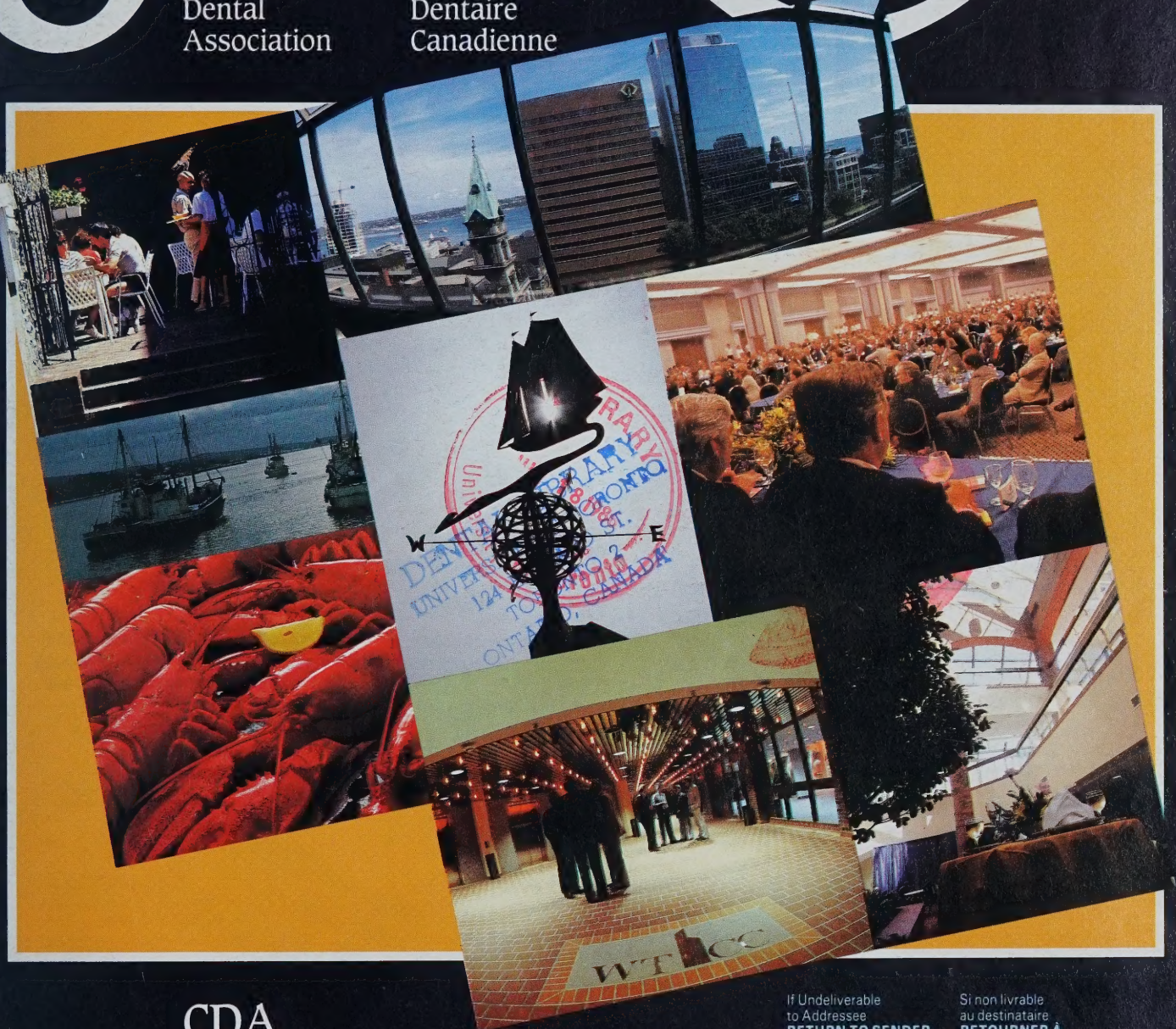
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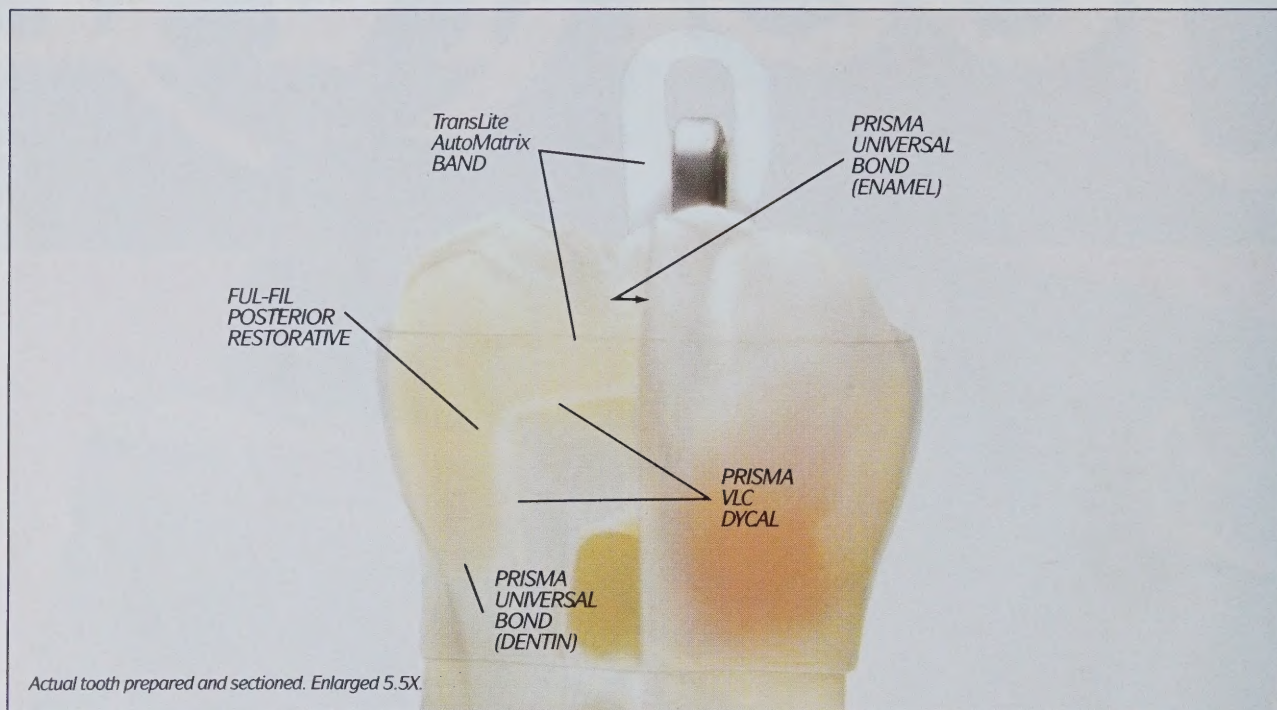


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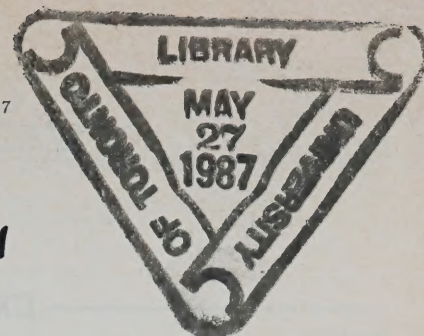


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Editorial

QUALITY IS JOB ONE

Over the last couple of years the Ford Motor Company has based its advertising campaign on the slogan "Quality Is Job One". They know that today's informed consumer looks beyond the cut-prices and red-tag specials and buys quality — something of value that will last.

The Organizing Committee for the Halifax Convention came to the same conclusion in the early stages of its planning process. We started from the position that you who are the Canadian Dental Association deserved a national meeting of the highest standards. In terms of location, scientific and social programs — for delegates, spouses and children — we have kept that commitment. Our programs have attempted to combine International standards of excellence with the traditions of Atlantic Canada. In keeping with this goal I am especially pleased to announce that Lord Dalhousie has graciously agreed to travel from Brechin Castle, his family home in Scotland, to formally open the Convention in Halifax — the home of Dalhousie University.

We are determined that in this critical year when future Convention planning is being thoroughly re-assessed, our delegates will long remember the warmth, the friendliness and the quality of Halifax/86.

I have heard criticism regarding the increase in Registration cost for this year's Convention. As much as anyone, I regret seeing costs rise but consider that if we had not increased registration we would have had to offer a poorer quality Convention. We have secured a 20 per cent discount from Air Canada; and hotel rates in Halifax compare very favorably with other Canadian Convention cities. Even at this year's figure of \$325., registration represents a bargain when one considers that it covers 2½ days of Continuing Education delivered by a team of International experts and also includes one breakfast, two lunches, and two 5 star dinners and professional entertainment. By reducing the standards of our programs and menus we might have cut registration costs by \$50. I know you will agree that to jeopardize the quality of our Convention to save this amount would be a case of penny-wise, pound foolish.

In fact, were it not for the extensive volunteer effort which is underway, all elements of the Social Program, Spouses' Program, Children's Program, Tours, and baby-sitting services would only be possible at significant additional cost. Instead, because of the generosity of these dentists, spouses, students, hygienists, assistants, and members of the Armed Forces we have been able to target our registration fees in a way that will maximize the return to all attending delegates and their families.

We are ready, join us in August in Halifax.

*W. Ian Vogan
Chairman
Convention Committee*



HALIFAX IS PREPARED TO WELCOME DELEGATES

Halifax, Nova Scotia, and all other Atlantic Canada points of interest, are prepared to provide Canadian Dental Association Annual Convention delegates with highly memorable and enjoyable experiences.

The emphasis, as Convention Committee Chairman Dr. Ian Vogan states elsewhere in this edition of JCDA, is on quality.

When delegates have experienced this Convention, Dr. Vogan adds, they "will long remember the warmth, the friendliness and quality of Halifax '86."

'Looking to the Future'

Presenters of world stature ensure a scientific program of great significance to general practitioners and those in the specialty practices.

The motto of the Convention — "Looking to the Future" — will be borne out in discussions of new treatment modalities and areas of growing concern for the dental profession as practitioners move toward the challenges of a new century.

The value of the continuing education opportunities will be fully realized as the delegates who have enjoyed this experience approach the year 2000.



Dr. Ian Vogan, Convention Chairman

Relaxing vacation

The opportunity for the whole family to enjoy the relaxing vacation that only Atlantic Canada could provide, has been explained in pleasant detail in previous editions of this Journal.

The Convention Committee has ensured that other members of the family will not

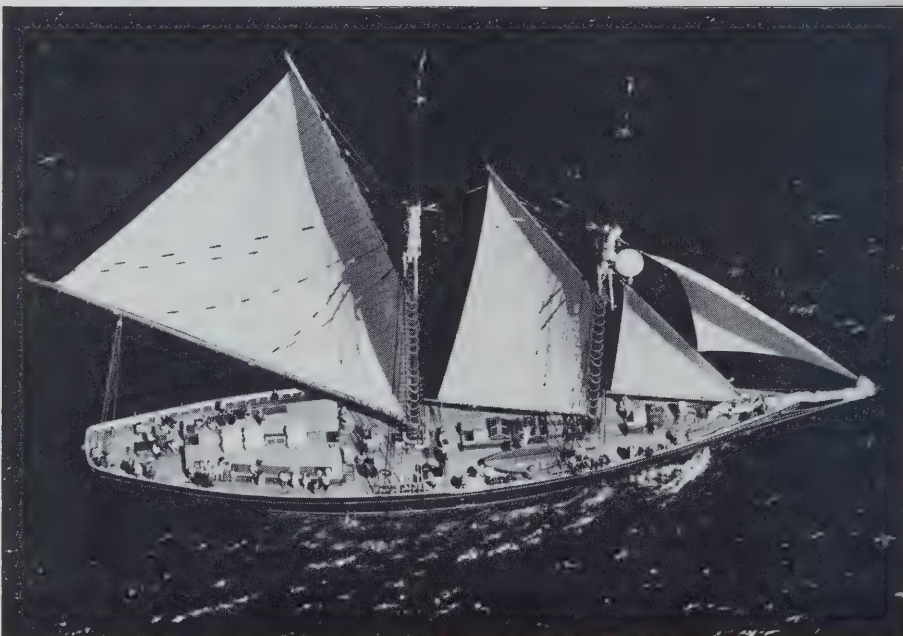
be at loose ends while father or mother are involved in the Convention program.

Spouses

The Committee has arranged an imaginative program with the widest possible range of appeal — social events, educational sessions, tours to interest the history buffs and



Peggy's Cove, a natural attraction conveniently close to Halifax.



The Bluenose II, leaving her Halifax harbor berth, under full sail.

(Photos courtesy of the Nova Scotia Department of Government Services).

antique collectors and the opportunity to sit in on Convention sessions.

The social program will involve the opening party, a dress-up ball, the oyster bash, excellent dinners and luncheons and some traditional Maritime entertainment.

Spouses will, of course, be able to enjoy some free time to zero in on antique shops, fashion boutiques and to buy local pottery and souvenirs.

Childrens' programs

The local committee has arranged effective programs to provide baby-sitting, day-care, and organized activities for children aged seven to 15. These arrangements will ensure satisfaction and pleasure both for parents and children for those delegates who opt for a family vacation combined with Convention attendance.

The committee must, however, be informed as soon as possible about attendance of children, in order to know if the programs will be justified. They must all be registered by the delegate.

Exhibits

Halifax's magnificent, modern World Trade & Convention Centre will be the scene of most Convention activities and an adjoining facility, the Metro Centre, will house an impressive dental industry exhibition area.

The volume and variety of this display is guaranteed to make this area one of the major attractions of the Convention.

Pomp and pageantry

Pomp and pageantry have become part and parcel of CDA Conventions in recent years, and 1986 will be no exception.

The color will be enhanced this year by the presence of the Earl and Countess of Dalhousie, whose predecessor in the early 19th century played a significant role in Nova Scotia's history and in the founding of Dalhousie University in Halifax.

Lord Dalhousie will declare the 1986 CDA Convention officially open on the evening of August 24.

EARL OF DALHOUSIE TO OPEN CONVENTION

Simon Ramsay, the 16th Earl of Dalhousie, and the Countess of Dalhousie, have accepted an invitation to visit Halifax and to officiate at the official opening of the 1986 national CDA Convention on Sunday evening, August 24.

The Earl's family, in earlier days, had close associations with Canada, and in particular, Nova Scotia.

Founder of Dalhousie U.

Sir George Ramsay, the 9th Earl of

Dalhousie, served as Governor-in-Chief of the Canadas from 1819 to 1828.

He had joined the British Army at an early age and became one of the Duke of Wellington's most distinguished generals. He received official thanks from the British Parliament for his service at the Battle of Waterloo, in 1815.

His administrative career began in 1816, when he was appointed Governor of Nova Scotia.

When the then Governor of the Canadas, the Duke of Richmond, died as the result of a bite from a rabid fox, in 1819, the Earl of Dalhousie was commissioned to fill the vacancy.

Literacy and learning

A patron of the arts and strong supporter of literacy and learning, the 9th Earl was the founder of Dalhousie College in Halifax, in 1818 and the Québec Literary and Historical Society in 1824. He also endowed one of Upper Canada's (Ontario) first public libraries and shipped many valuable volumes from his personal library in Scotland, to establish the facility.

He earned respect as a good administrator and a firm disciplinarian.

When he returned to Scotland in 1828, he received another appointment. The Earl continued his administrative career in the role of Commander-in-Chief in India, from 1829 to 1832. He died at Dalhousie Castle in 1838.

The present Earl

The present Earl has also enjoyed an eventful public and military service career.

Born in 1914, he was educated at Eton and Oxford and later saw service with the British Army. His family has been associated with the famed Black Watch Regiment for generations. He was awarded the Military Cross for his wartime service.

He became a Member of the British Parliament and at one point served as Party Whip of the British Conservative Party.

The highlight of his public service career came with his appointment as Governor-General of Rhodesia and Nyasaland. He served in this post from 1957 to 1963.

Like his predecessor, the 9th Earl, the present Earl of Dalhousie is a strong supporter of the arts and educational institutions.

He has served as Chancellor of the University of Dundee, and was awarded an honorary LLD degree there in 1967.

He maintains contact with Dalhousie University in Halifax, and in 1952 received an honorary LLD from that University.

Events at Dalhousie

While in Halifax, the Earl and Countess will be guests of honor at several events at Dalhousie University.

THE GEORGE WELLINGTON GRIEVE LECTURE ESTABLISHED IN 1950

At the May, 1950 meeting of the Canadian Dental Association's Board of Governors, the George Wellington Grieve Memorial Lecture was established.

The action was taken following a recommendation from a group of Canadian orthodontists who met a few days before.

This became the first Canadian dental lectureship and was termed a fitting memorial to an outstanding dentist.

Independence of thought

In his early days of specialization, Dr. Grieve displayed a characteristic independence of thought when he advocated the removal of certain dental units in selected cases before the commencement of orthodontic treatment. He found that when this procedure was followed, the teeth remained in better position after the completion of orthodontic therapy. This thesis was at variance with the teachings of Dr. E.H. Angle whose course of instruction in Orthodontics Dr. Grieve had taken in 1907. It was gratifying for him to witness during his later years acceptance of his thesis by a large number of his orthodontic confreres. Because of this independence of thought, as well as his meticulous attention to detail, Dr. Grieve earned an international reputation. He received invitations to present scientific papers before many dental and orthodontic societies in Canada, the United States, Great Britain and France.

In 1940 he was the recipient of the Albert Ketcham Award from the American Board of Orthodontics. But it is not only for his achievements as an orthodontist that Dr. Grieve is post-humously honoured. He strove constantly for the best in dentistry, particularly in its educational and clinical aspects.

For many years he was Chairman of the Educational Committee of the Canadian Oral Prophylactic Association which was the only dental organization conducting public health education in Canada at that time. In this capacity he performed an invaluable service to Canadian dentistry. Through his scientific papers, as well as through his daily personal contacts with members of his profession, he wielded a strong influence for the betterment of dentistry.

One of Dr. Grieve's objectives during his

years of practice was to encourage more dentists to include orthodontics in their practices and much of his teaching was directed to the accomplishment of this objective. The establishment of the Lectureship in his memory can be adapted to the continuance of this important objective.

Conditions Governing the Grieve Memorial Lectureship

1. A fund to be established by the Canadian Dental Association known as the Grieve Memorial Lectureship Fund, to be provided through voluntary contributions of the members and from any others who wish to contribute.

2. The total contributions of the fund to be invested by the Secretary Treasurer of the Canadian Dental Association upon the authorization of the Executive Committee in a trust, the trustees of which will be the persons named in 6.

3. The income from the investment of the principal sum of the fund to be used for defraying the travelling expenses of a lecturer.

4. The lecture to be delivered on an annual basis if an individual is deemed worthy of the honour.

5. The basis for the selection of an individual to receive the invitation to prepare and present the lecture shall be any meritorious service in the scientific, educational, or clinical aspects of orthodontics, or in any other closely allied field of activity.

6. For the purpose of selecting an individual to deliver the lecture a special committee will be set up composed of the Secretary of the Canadian Dental Association, and the Chairman and Secretary of the Orthodontic Section. The selection by this committee must be unanimous and their decision will be final.

7. The time of the lecture will ordinarily coincide with the annual meeting of the Canadian Dental Association.

The Board of Governors, at its previous meeting, also authorized the formation of a section for orthodontic specialists within the structure of the CDA.

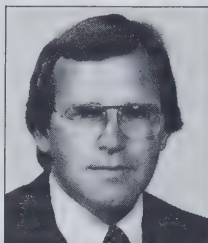
A twofold purpose was foreseen for the Lectureship. Firstly, to memorialize the contribution which Dr. Grieve made to orthodontics and secondly, to develop the broad concept which he had of orthodontics as a part of the general practice of dentistry.

To implement such a project, an amount in the neighborhood of \$5,000 was deemed necessary. A number of the orthodontists of Canada and the United States had already subscribed a sum slightly in excess of \$1,500 and this announcement was made in anticipation of the active interest and support of the profession in general.

'LOOKING TO THE FUTURE'

Delegates to the 1986 CDA National Convention in Halifax will benefit from the opportunity to participate in an exciting panorama of dental knowledge and education, which will lead them into the 1990s with confidence.

A world class array of presentations and symposia ensures that attendance at these events will be memorable.



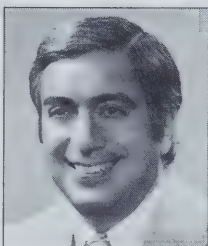
*Dr. Gary M. Foshay
Scientific Program
Chairman*

Scientific Program Chairman Dr. Gary M. Foshay, has revealed the details to this Journal, and has provided the information which follows:

Monday, August 25

Morning Session — 10 a.m. to Noon

Grieve Memorial Lecture



*Dr. Frank Shamy
— Past-President of
the Canadian Association
of Orthodontists, who conducts a
private specialty
practice in Montréal
and has been a member
of the Faculty of*

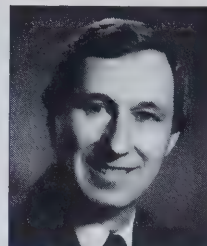
Dentistry, McGill University, is the presenter at this highlight event in the scientific program.

"Orthodontics and Periodontics: The Foundational Basis for Restoration of the Compromised Adult Dentition." (This session will continue, following lunch, until 4.30 p.m.) This presentation will be by Drs. Normand Boucher and Harvey Levitt.



*Dr. Normand
Boucher
— is Clinical Assistant
Professor of
Orthodontics at the
University of Penn-
sylvania and Chief
of Orthodontics at
Thomas Jefferson*

University.



*Dr. Harvey Levitt
— is Assistant
Professor of Ortho-
dontics and Perio-
dontics at the
University of Penn-
sylvania and with
the Department of
Orthodontics at*

McGill University Montréal. He is also guest lecturer in Orthodontics at the University of Montréal.

"Endo-Perio: The Diagnostic Dilemma"



*Dr. Philip Malloy
— of Brookline, Mas-
sachusetts, is an
Associate Professor
at Tufts University,
Boston, and has a
private specialty
practice in Boston
and Cape Cod.*

"Birth Defects and Dentistry"



*Dr. Michael Cohen Jr.
— is Professor of Oral
Pathology, Faculty
of Dentistry, and
Professor of Pedi-
atrics, Faculty of
Medicine, at Dal-
housie University,
Halifax. The author*

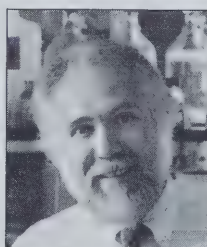
of more than 120 articles in the scientific literature, Dr. Cohen has been author, co-author and co-editor of seven books.

Monday, August 25

Afternoon Session — 2 to 4.30 p.m.

"Orthodontics and Periodontics" (Drs. Normand Boucher and Harvey Levitt, continues until 4.30 p.m.)

"Research Opportunities for the 21st Century"



*Dr. Harold Slavkin
— who is very active
in the International
Association for Den-
tal Research, is
Professor of Bio-
chemistry and Nutri-
tion, and serves on
the faculty, Graduate*

Program in Cellular and Molecular Biology, Graduate School, University of Southern California. He is also Laboratory Chief, Laboratory for Developmental Biology, Gerontology Centre, University of Southern California.

"Role of Antimicrobials in the Treatment of Periodontal Disease"



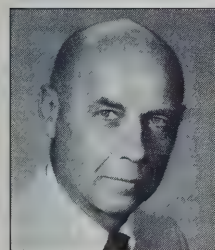
Dr. Trevor Chin Quee — is Director and Associate Professor, Division of Periodontology, Faculty of Dentistry, McGill University, Montreal.

Student Table Clinics and Projected Clinics will be held Monday afternoon

Tuesday, August 26

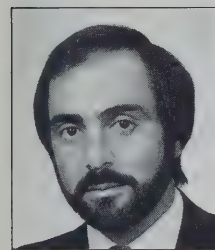
Morning Session — 9 a.m. to Noon

"Surgical Reconstruction of Deformed Pontic Areas"



Dr. Jay Seibert — is Professor of Periodontics, School of Dental Medicine, University of Pennsylvania, Philadelphia. He also conducts a part time practice in Philadelphia.

"Restorative Esthetics"
"New Horizons in Dentistry"



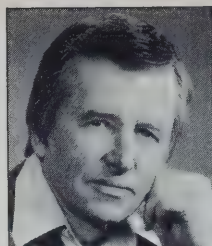
Dr. David Garber — a specialist in the fields of Periodontics and Periodontal Prosthesis, conducts a private practice in Atlanta, Georgia. Earlier he was a member of the dental faculty of the University of Pennsylvania. (Dr. Garber's presentation will continue in the afternoon session)

Oral and Maxillofacial Surgery



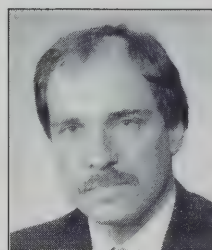
Dr. David Precious — is Associate Professor, Oral Surgery, and Director of the Graduate Training Program in Oral and Maxillofacial Surgery, in the Faculty of Dentistry, Dalhousie University. He also has a private practice at Victoria General Hospital, Halifax.

"Creative Strategic Planning"



Mr. Wilson Southam — has made presentations in Canada, the United States and Australia, counselling health care professionals about health centres, self-management, facility design, workplace efficiency and systems analysis.

Health Screening Symposium:
"The Health of Canadian Dentists: Current Occupational Health Hazards of Concern"



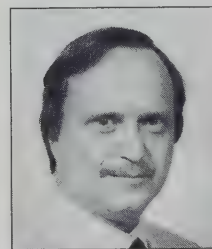
Dr. Patrick Blahut — Assistant Professor, Department of Community Health and Preventive Dentistry, Baylor College of Dentistry, Dallas, Texas. Dr. Blahut was formerly a member of Dalhousie University's Faculty of Dentistry, as Assistant Professor of Community Dentistry and Acting Head, Division of Community Dentistry.



Dr. John Hardie — Consultant to the Ontario Cancer Foundation, CDA representative to the National Advisory Committee on AIDS, Chairman of CDA's Editorial Board and Head of Dentistry, Ottawa Civic Hospital.



Dr. Elliott Sutow — who holds a PhD from the School of Metallurgy and Materials Science, University of Pennsylvania, is Associate Professor, Department of Restorative Dentistry, Division of Dental Biomaterials Science, Dalhousie University.



Dr. William Mayberry — who holds a PhD in Educational Psychology, is a Professor and Associate Dean, Academic Affairs, School of Dentistry of the University of Missouri, Kansas City.

Tuesday, August 26

Afternoon Session — 2 to 4.30 p.m.

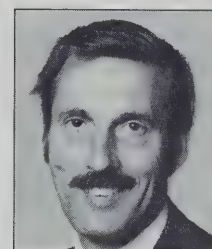
"Surgical Reconstruction of Deformed Pontic Areas" (continues, with Dr. Jay Seibert)

"Restorative esthetics"

"New Horizons in Dentistry" (continues, with Dr. David Garber)

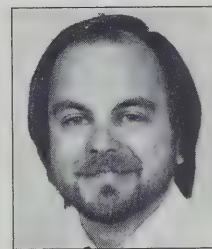
"Creative Strategic Planning" (continues with Mr. Wilson Southam)

"The Future of Biomaterials"

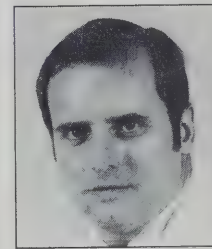


Dr. Derek Jones — is Professor and Head, Division of Dental Biomaterials Science, Faculty of Dentistry, Dalhousie University. He states that "the future use and development of improved biomaterials as substitutes for natural tissues during the next 20 years will provide dentistry with an exciting and challenging prospect."

"Maxillofacial Prosthetics: From the Womb to the Tomb"
Also: "Head and Neck Cancer: A Trilogy of Care"



Dr. Robert Brygider — who will present on Maxillofacial Prosthetics, is Assistant Professor, Removable Prosthodontics, Faculty of Dentistry, Dalhousie University. He also maintains a private specialty practice (part-time) in Halifax.



Dr. Robert Hoar — Assistant Professor of Prosthodontics and Co-ordinator of Dental Laboratories, Faculty of Dentistry, Dalhousie University, will speak on Head and Neck Cancer, and the care of afflicted patients.

Clinicians' Table Clinic Presentations will continue throughout the day

Wednesday, August 27

Morning Session —
9 a.m. to Noon

“Successful Removable Partial Dentures”



Dr. Robert Chapman — who is Head of the Division of Fixed and Removable Prosthodontics and Director of Implant Prosthodontics, Tufts University, Boston, is the presenter. Dr.

Chapman also maintains a private specialty practice in Boston.

“Protecting the Dentist Against the Law”



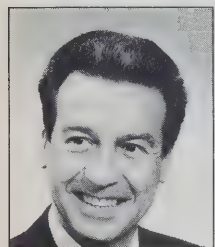
Mr. Lorne E. Rozovsky, QC — is a member of a prominent law firm in Halifax. He works exclusively in the health law field, advising health professionals, associations and institutions, across Canada and abroad. He says professional malpractice can be prevented with increased legal awareness and simple legal guidelines.

“AIDS, Related Diseases and Dentistry.”



Dr. John Hardie — Consultant to the Ontario Cancer Foundation, CDA representative on the National Advisory Committee on AIDS, Chief of Dentistry, Ottawa Civic Hospital and Chairman of CDA's Editorial Board, will speak on the oral manifestations of AIDS and the impact on the delivery of dental care.

“Dental Manpower — A Symposium Update”



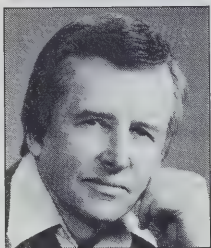
Dr. Ian Vogan — Associate Professor of Periodontics, Department of Restorative Dentistry, Dalhousie University, and Chairman of the CDA Convention Committee, 1986, Halifax, is the Moderator of this Symposium.

Panelists:



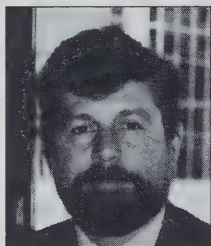
Dr. Derrick M. Chisholm

— of Dundee, Scotland, who has served as Dean of Dentistry, University of Dundee, is a member of the Dental Educational Advisory Committee of the U.K. and also of the national General Dental Council, and a member of the Dental Committee, Scottish Council for Postgraduate Medical Education.



Mr. Wilson Southam

— consultant to health care professionals on matters of health centres, self-management, facility design, workplace efficiency and systems analysis.



R.K. House, PhD

— who heads the firm R.K. House & Associates, economic consultants, became familiar with dental profession concerns early in his firm's career, and in 1982, produced the highly significant document: “Manpower Supply Study. Scenarios for the Future: Dental Manpower to 2001”, for the Canadian Dental Association.

CONCURRENT MEETINGS SPECIALTY OF GROUPS

A number of specialty and affiliated dental groups will hold meetings just previous to, or during, the CDA annual Convention in Halifax.

These include the Canadian Academy of Restorative Dentistry, the Royal College of Dentists of Canada, the Canadian Academy of Radiology, the Academy of Dentistry International, the Pierre Fauchard Academy Breakfast, the Canadian Society of Public Health Dentists and the International College of Dentists.

Academy of Restorative Dentistry

The Canadian Academy of Restorative Dentistry, meeting August 17-19 will have, according to President Dr. D.C.T. Macintosh, a high calibre scientific program and

members and guests will enjoy a harbor cruise, lobster party and a dinner dance.

In addition to scientific presentations ranging from restorative materials and preparation for restorative procedures to pain control, a number of clinics will be presented.

Most activities will be centred at the Halifax Sheraton Hotel.

Royal College of Dentists

The Royal College of Dentists of Canada will meet at the Halifax Sheraton Hotel from August 20 to the 23rd.

The highlight of the session will be the Convocation and dinner at the World Trade & Convention Centre on Friday, August 22.

The guest speaker at the annual Convocation will be Dr. K.L. (Ken) Zakariasen, the newly appointed Dean of Dentistry at Dalhousie University in Halifax. The College also hopes to have as a guest of honor on the occasion, Premier John Buchanan of Nova Scotia.

Oral Radiology

The 15th annual meeting of the Canadian Academy of Oral Radiology, a session which does not often occur in conjunction with the CDA Convention, will be held August 22-23 in Halifax.

This year it will be a conjoint meeting with the East Coast Dental Radiology Workshop.

The scientific session on various topics in radiology will include research and clinical interpretation. Also, Dr. Doug Stoneman of the University of Toronto will speak on skeletal changes in vascular lesions.

International Academy

The Academy of Dentistry International, Canadian Fellowship Convocation, will be held at the Halifax Sheraton Hotel on Saturday, August 23.

Canadian Chairman Dr. Clement S. LeBlanc, Immediate Past-President of the New Brunswick Dental Society has, with the assistance of Dr. Douglas V. Chaytor of Dalhousie and CDA Past-President Dr. Donald E. Williams, Secretary-Treasurer of the Canadian Section of the Academy, arranged the event.

In recent years the Academy, which was established as a world-wide organization dedicated to the advancement of the Science of Dentistry through a program of Continuing Education, has been focussing much attention on Canada, Dr. LeBlanc told the Journal.

The Academy bestows Fellowship on a person who has notably contributed to the advancement of the dental profession in one or more ways, such as: Clinical Practice;

Research, Education, Public Service, Literature or Journalism and Service to the Profession.

Pierre Fauchard Breakfast

Dr. Lorne V. Taylor, of London, Ont., Chairman of the Academy's Canadian Section and CDA Past-President Dr. Donald Williams, of Moncton, N.B., have arranged another notable adjunct of the CDA annual Convention — the Pierre Fauchard Breakfast — on Monday, August 25, in the Halifax Sheraton Ballroom.

The highlight of the gathering for members of this service organization of dentists will be an address by the International President of the Academy, Dr. C. Robert Breckenridge, of Lodi, California.

In 1985, in Ottawa, the Academy's Board of Trustees elected CDA's former Executive Director, Hubert E. Drouin, as an Honorary Member of the Pierre Fauchard Academy.

Public Health Dentists

The Canadian Society of Public Health Dentists will hold its annual meeting and scientific program on August 24-25, in Halifax.

Dr. Neil Farrell, of London, Ont., noted that the former one-day annual session has recently been extended to two days. The business session will take place on Sunday, August 24, and a Scientific presentation will follow.

The Society will join with the Canadian Dental Hygienists in the scientific sessions on Monday, August 25. Society members will also be able to attend CDHA sessions on Tuesday, August 26.

International College

The International College of Dentists, Canadian Section, will meet August 23-25 at the Château Halifax Hotel.

Saturday evening, August 23, a reception for new inductees and a dinner, will lead off the events.

The highlight will be a black tie dinner and the Convocation on Sunday evening, August 24, in the Bluenose Room of the Château Halifax.

On Monday, August 25 the College's Board of Regents will meet, beginning at 9.30 a.m.

The President of the Canadian Section is Dr. Louis Mandin of St. Paul, Alberta and the President-Elect is Dr. Irving Siegel, of Toronto.

The Immediate Past World President of the College is Dr. William J. Spence, of Toronto, Dr. Spence also serves as Registrar of the College.

MEMBERS OF HALIFAX '86 CONVENTION COMMITTEE

Final details of what appears will be an outstanding and memorable Convention of the Canadian Dental Association have been completed.

The general chairman of the Convention in Halifax, August 24-27, is Dr. Ian Vogan, of Halifax.

Other members of the Convention Committee are: Dr. Gary Foshay,

Scientific Chairman; Dr. Phil Cyr, Social Chairman; Dr. Terry Ingham, Local Arrangements Chairman; Dr. Andrew Thompson, Chairman of Publicity and Promotion; and Mrs. Margaret Vogan, Spouses' Program Chairman.

Miss Terry Mitchell represents the Canadian Dental Hygienists' Association on the Committee, and Miss Susan Mader is the member representing the Canadian Dental Assistants' Association.

SPOUSES' PROGRAM

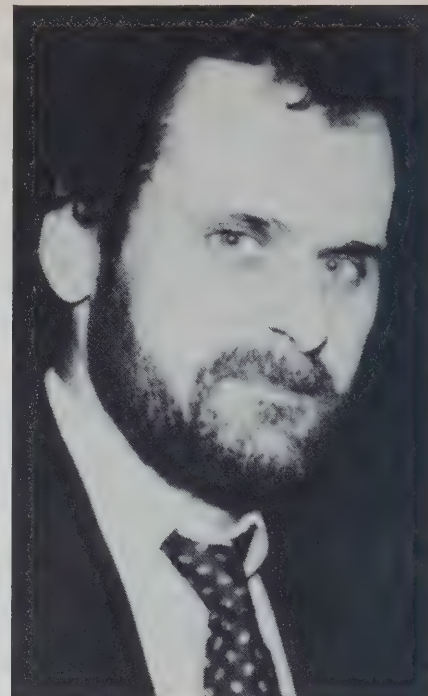
DATE	TIME	EVENT	LOCATION
Saturday August 23	4-6 p.m.	Pre-Convention sail in Halifax Harbor (Additional Ticket item)	
Sunday August 24	8 a.m.	CDHA Fun Run/Walk (Sponsored by ADIDAS) Separate registration form	
	Noon to 9 p.m.	Registration and Information	World Trade & Convention Centre
	Noon to 5 p.m.	Hospitality Suite	
	7-10 p.m.	Registration Party "A Nova Scotia Seafood Fair"	
Monday August 25	7.30 to 5 p.m.	Registration and Information	World Trade & Convention Centre
	9 a.m. to 6 p.m.	Hospitality Suite	
	11 a.m. to 2.30 p.m.	Craft Market and Food Fair Luncheon and Fashion Show by Nova Scotia designers Walk-about cooking demonstration and wine tasting.	
	3 p.m.	Walking tour of historic downtown Halifax	
	8 p.m.	President's Gala Evening (Additional Ticket item)	Sheraton Halifax Hotel
Tuesday August 26	8 a.m. to 5 p.m.	Registration and Information	World Trade & Convention Centre
	8 a.m.	Craft Market	
	9 a.m. to 6 p.m.	Hospitality Suite	
	9 a.m. to 4.30 p.m.	Tours: Annapolis Valley OR, South Shore Tour (Indicate preference on registration form)	
	7-11 p.m.	Lobster Bash Dartmouth Sportsplex	
Wednesday August 27	9 a.m. to Noon	Hospitality Suite Featuring Morning Seminars (45 minutes each) from 9.30 a.m. to 11.30 a.m. — Stress Management — Art Appreciation — Genealogy — The Psychology of Hair	

Note: Spouses' registration includes access to all scientific sessions and the commercial exhibition.

CHILDRENS' PROGRAM (AGES 7 TO 15)

DATE	TIME	EVENT(S)	DEPARTURE POINT
Monday August 25	9 a.m.	Sports events at Dalplex (Dalhousie University Sports facility). Swimming, Racquet Sports — tennis, badminton. Running track, gym. (Supervised by Dalhousie Staff — ratio 1-10) Lunch included.	Meet at Cornwallis Suite, World Trade & Convention Centre.
	4 p.m.	Return to World Trade & Convention Centre by bus.	Travel by double-decker bus to Dalplex.
Tuesday August 26		Tours to Halifax Police Station — OR — Nova Scotia Museum	Meet at World Trade & Convention Centre Depart by double-decker bus.
	11.30 a.m.	Citadel Hill fortress for tour and lunch	
	1.45 p.m.	To Halifax YMCA for swimming and use of facilities. From 2 to 4 p.m. Chaperoned by local committee ladies. Ratio 1-8 (10 maximum).	Walk to YMCA
	4 p.m.		Walk back to World Trade & Convention Centre.
Wednesday August 27	9 a.m. to Noon	Morning at World Trade & Convention Centre. Features: Magic Show, Movies, Games, etc.	

Please Note: Parents are requested to register their children who would be participating in the above events, as soon as possible, to avoid disappointments.



Mr. Mark Sarner

DENTAL AWARENESS PRESENTATION

Mr. Mark Sarner, a director of Manifest Communications Inc., who has played a major role in the development of CDA's Dental Awareness Program, will conduct a session during the scientific program on Monday afternoon, August 25.

"Dental Awareness: How It Can Work for You" is the title of the presentation which he told JCDA would be an overview of the program, what it means and the present stage of it.

The Program will be explained in terms of the public arena — to raise public awareness of the need for regular dental care, and in the dental office — simple strategies that work and why good patient communication matters.

Questions and answers

Mr. Sarner advised those who will form his audience at the Convention session to come prepared to ask questions. He said ample time will be allowed following his formal presentation for a problem-solving question and answer period.

CDA LIFE MEMBERS ENJOY PRIVILEGES

Life Members of the Canadian Dental Association may enjoy certain privileges at the Annual Convention in Halifax.

They may attend all scientific sessions and visit the exhibits free of charge.

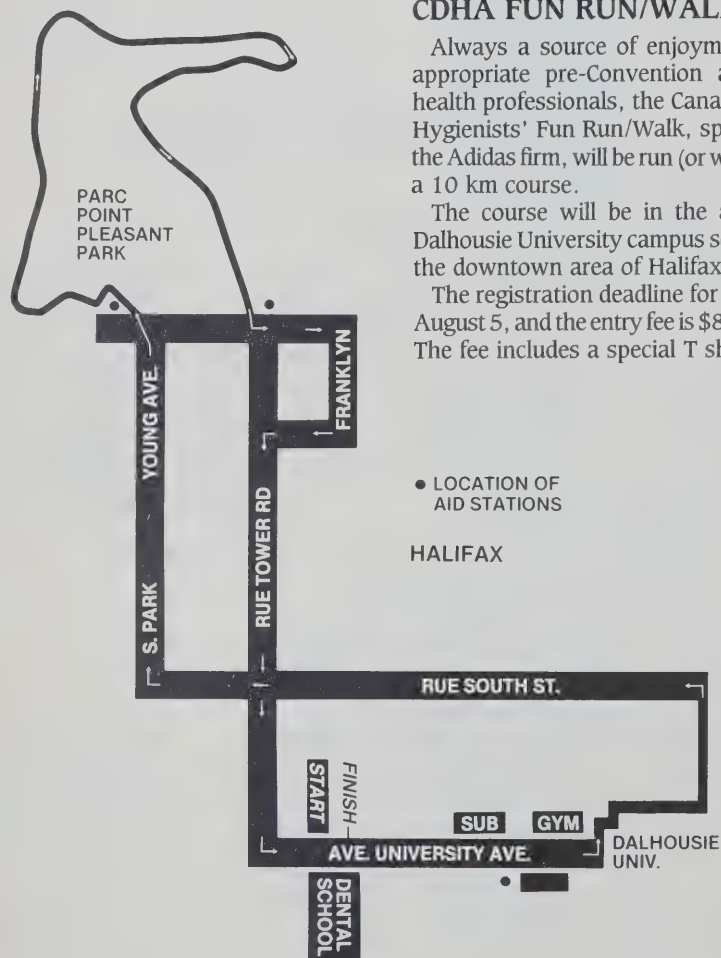
Access to social events, however, will be by ticket only.

CDHA FUN RUN/WALK

Always a source of enjoyment and an appropriate pre-Convention activity for health professionals, the Canadian Dental Hygienists' Fun Run/Walk, sponsored by the Adidas firm, will be run (or walked) over a 10 km course.

The course will be in the area of the Dalhousie University campus southwest of the downtown area of Halifax.

The registration deadline for his event is August 5, and the entry fee is \$8 per person. The fee includes a special T shirt.



INCREASING SUPPORT FOR SCIENTIFIC PROGRAM

Organizers of the Scientific Program for the CDA Convention '86 in Halifax, have been encouraged by the extent of support offered by dental industry firms and other commercial interests in Canada.

The list continues to grow and the Committee would like to acknowledge their support in this updated listing, below:

Oral B Laboratories

Ash-Temple Limited

Healthco (Canada) Limited

Warner-Lambert Canada Inc.

Cerum Ortho Organizers

Denco Division of Sybron Canada Ltd.

Avis Rent A Car

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Merck-Frosst

Johnson & Johnson

Medident

Rhône-Poulenc

Additional sponsors will be listed in future editions of the Journal.

NOVA SCOTIA CHECK-IN

Computerized information and reservations system can provide you with area weather forecasts, ferry schedules, hotel-motel-campground reservations and details of all tourist events of interest. Just call

Check-In 1-800-565-7166

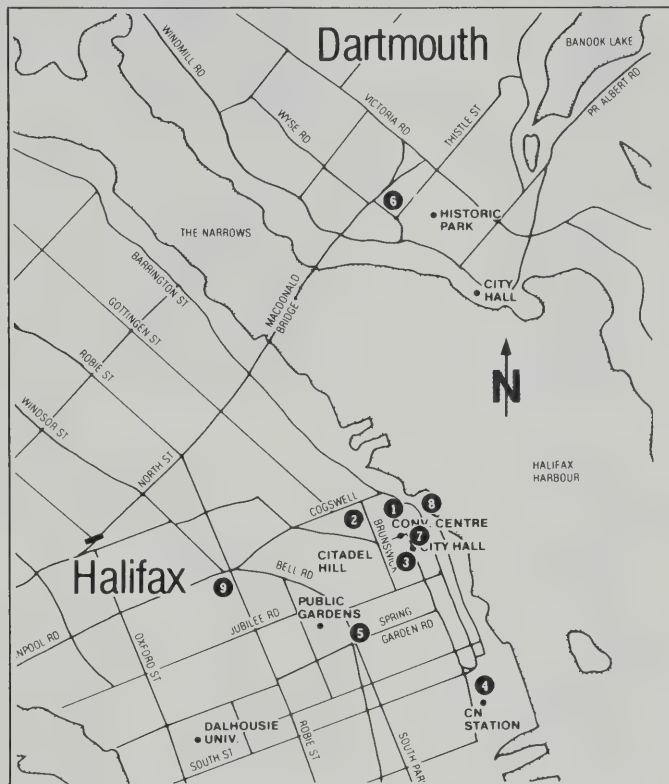
for B.C. 112-800-565-7166

HALIFAX HOTELS

The major Halifax hotels of the downtown area of the city, close to the World Trade & Convention Centre, are listed hereunder.

If you have already registered for the CDA Convention, or are in the process of doing so, it is suggested this list, with your hotel address and phone number ticked off, can be clipped and posted at your home and office to make it easier for those at home to communicate any urgent messages while you are attending the CDA Convention in Halifax.

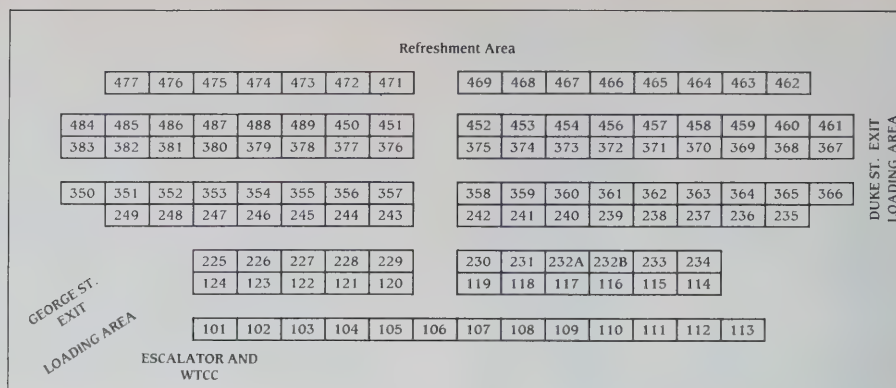
- 1 Chateau Halifax
- 2 Citadel Inn
- 3 Prince George Hotel
- 4 Nova Scotian Hotel
- 5 Lord Nelson Hotel
- 6 Dartmouth Sportsplex
- 7 World Trade & Convention Centre
- 8 Sheraton Halifax
- 9 Holiday Inn



Hotel Name	Address	Telephone (Area Code 902)
Halifax Sheraton	1919 Upper Water Street, Halifax, N.S. B3J 3J5	(902) 421-1700
Prince George Hotel	1725 Market Street, Halifax, N.S. B3J 2X1	(902) 425-1986
Chateau Halifax	1990 Barrington Street, Scotia Square, Halifax, N.S. B3J 1P2	(902) 425-6700
Delta Barrington	1875 Barrington Street, Halifax, N.S. B3J 3L6	(902) 429-7410
Citadel Inn	1960 Brunswick Street, Halifax, N.S. B3J 2G7	(902) 422-1391
Holiday Inn	1980 Robie Street, Halifax, N.S. B3H 3G5	(902) 423-1161
Hotel Nova Scotian	1181 Hollis Street, Halifax, N.S. B3H 2P6	(902) 423-7231

EXHIBITORS AT HALIFAX METRO CENTRE

COMPANY NAME	BOOTH NUMBER
3M Canada Inc	378
A-Dec Inc	239, 240
Amadent/American Medical & Dental Corp	485
Ash Temple Ltd	232B, 233, 234
Astra Pharmaceuticals Canada Ltd	237
Aurum Ceramic Dental Laboratories Ltd	116
Bank of Montreal	110
Belmont Takara Company Canada Limited	452, 375
Block Drug Company	105
Brasseler USA Inc	353
Braun Canada	122
Buffalo-Novocol Canada	230
Busse Dental Supplies	379
Canadian Dental Service Plans Inc	247, 248
Cerum Ortho Organizers	114
Chayes Virginia Inc	232A
Colgate-Palmolive Canada	101, 102
Computer Utility Management Ltd	488
Continental Bank of Canada	371
Creative Esthetics Dental Lab	370
Crown Tech Laboratories Ltd	454
Den-Mat Corporation	372
Den-Tal-Ez/Syntex Dental Products Inc	355, 356
Denco, Division of Sybron Canada Ltd	467, 468, 469
Dental Depot Canada Ltd (Healthco)	227, 228, 229
Dentsply Canada Ltd	383, 382, 381
Dow Pharmaceuticals	359
Encyclopaedia Britannica	109
Exan Computer Systems & Services Ltd	120, 121
First City Medical Leasing	108
Ford of Canada	249, 350, 351
Frank W Horner Inc	460, 461
Gulf Casting Laboratory Ltd.	362
Hoechst Canada Inc — Pharmaceutical Div	471
Hu-Friedy Mfg Company	111
Inter-Dent Intl Supply Co of Canada	361
Inter-Unitek Canada Ltd	112
Ivoclar-Vivadent Canada Inc	358
John O Butler Company	357
Johnson & Johnson (Health Products)	352
Kerr Canada	376
Kodak Canada Inc	360
Lux & Zwingerberger Ltd	238
Medi-Dent Service	231
Midwest	453
Modular & Custom Cabinets	451
McBee Technographics Inc	365
Nobelpharma Canada Inc	246
North Pacific Dental/Asceptico	113
Ohmeda	107
Ont. Min. of Health — Underserved Area Program	456
Oral-B Laboratories Inc	123, 124
Philips Electronics Ltd	462



Premier Dental (Canada) Inc	104
Pro-Dent Laboratory Ltd	450
Procter & Gamble Inc	119, 118, 117
Rhône Poulenc Pharma Inc	489
Riker Canada Inc	377
Royal Trust Corporation	486
Sabra-Dent Dental Supplies	368
Safeguard Business Systems Limited	464, 465
Sci-Can Inc (Div. of Lux & Zwingerberger)	243
Shana Enterprises Inc	241
Shofu Dental Corporation	374
Siemens Electric Limited	225, 226
Space Maintainers Laboratories Canada	115

Star Dental/Syntex Dental Products Inc	354
Teledyne Water Pik Canada	103
The Caulk Co of Canada	242
Tri Hawk International Inc	106
Unident Limited	235, 236
Uniform World	366
Upjohn Company of Canada	477
W B Saunders Co Canada Ltd	373
Warner-Lambert Canada Inc	244, 245
Whitehall Laboratories	484
Wrigley Canada Inc	466
Wright Dental Canada Ltd	367

**Late adjustments and additions may change the foregoing slightly*

CANADIAN DENTAL ASSISTANTS' ASSOCIATION CONVENTION PROGRAM

DATE	TIME	EVENT	LOCATION
Sunday August 24	8 a.m.	Fun Run/Walk	
	Noon to 9 p.m.	Registration and Information	World Trade & Convention Centre
	7-10 p.m.	Registration Party	World Trade & Convention Centre
Monday August 25	7 a.m.	Aerobics/Running	Citadel Inn
	7.30 a.m. to 6 p.m.	Registration and Information	
	8 a.m.	Opening Breakfast (Extra Ticket Item)	World Trade & Convention Centre
	9 a.m. to Noon	CDAA Annual Meeting	Citadel Inn
	9 a.m. to 6 p.m.	Commercial Exhibition	Metro Centre
	Noon	CDAA President's Luncheon	Citadel Inn
		Evening Free	
Tuesday August 26	7 a.m.	Aerobics/Running	Citadel Inn
	8 a.m. to 6 p.m.	Registration and Information	World Trade & Convention Centre
	9 a.m. to 5 p.m.	Commercial Exhibition	Metro Centre
	Noon	Luncheon and Fashion Show	
	7 p.m.	Lobster Bash (Extra Ticket Item)	Dartmouth Sportsplex
	9-11 p.m.	Moonlight Harbor Cruise	

Registrants are welcome to attend both the CDA and CDHA lectures.

The Commercial Exhibition will be located in the Metro Centre, of the World Trade & Convention Centre, and will be open to all registered delegates, August 25 and August 26.

A Hospitality Suite will be open at the Citadel Inn for the enjoyment of all CDAA delegates.

CANADIAN DENTAL HYGIENISTS' ASSOCIATION CONVENTION PROGRAM

DATE	TIME	EVENT	SPEAKER	LOCATION
Sunday August 24	8 a.m.	Fun Run/Walk		
	Noon to 9 p.m.	Registration and Information		World Trade & Convention Centre
	4-6 p.m.	Harbor Cruise (Complimentary to pre-registrants)		
	7-10 p.m.	Registration Party "A Nova Scotia Seafood Fair"		World Trade & Convention Centre
Monday August 25	7 a.m.	Aerobics/Running		Citadel Inn
	7.30 a.m. to 5 p.m.	Registration and Information		World Trade & Convention Centre
	8-10 a.m.	Opening Breakfast		World Trade & Convention Centre
	9 a.m. to 6 p.m.	Commercial Exhibition		Metro Centre
	10 a.m. to Noon	"The Adventures of Bruce the Dental Moose" Lecture/Demonstration Dealing with Motivational Strategies	Dr. Bill Wood	Citadel Inn
	Noon to 2.30 p.m.	CDHA President's Luncheon		Citadel Inn
	2.30 to 5	Workshop: Motivating Children in Good Nutrition and Dental Health.	Dr. Bill Wood	Citadel Inn
		Dental Hygiene Care for Patients with Special Needs	Mrs. Peggy Larder	Citadel Inn
	8-10 p.m.	Candlelight Tour of Halifax Citadel		
Tuesday August 26	7 a.m.	Aerobics/Running		Citadel Inn
	8 a.m. to 5 p.m.	Registration and Information		World Trade & Convention Centre
	9 a.m. to Noon	Commercial Exhibition		Metro Centre
	9 a.m. to Noon	Dental Hygiene Care for Institutionalized Patients	Dr. Ron Ettinger and Carol van Aernum	Citadel Inn
	Noon	Lunch on your own		
	2-3 p.m.	Eating Disorders – Anorexia, Bulimia	Marg Shackleton	Citadel Inn
	3-4 p.m.	Disease Activities and Entities, Current Perio Concepts	Dr. John Sterrett	Citadel Inn
	4-5 p.m.	Back Problems Related to Dental Hygiene Practice	Mr. Bill Humphries	Citadel Inn
Wednesday August 27	7 p.m.	Lobster Bash		Dartmouth Sportsplex
	7 a.m.	Aerobics/Running		Citadel Inn
	9.30 to 11 a.m.	Brunch and Learn – Stress and the Superwoman Syndrome	Dr. Leah Nomm	Chateau Halifax

*All sessions and activities are at the Citadel Inn unless otherwise specified
Access will be available to the CDA Scientific Program*

The Commercial Exhibition in the World Trade & Convention Centre will be open to all registered CDHA delegates

A Hospitality Suite will be open at the Citadel Inn for the enjoyment of all CDHA delegates

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CDA CONVENTION AUGUST 24-27 · HALIFAX '86

1986 CDA CONVENTION HOTEL RESERVATION FORM

IMPORTANT NOTES:

1. Hotel reservations will be confirmed upon receipt of your Convention Registration Form.
2. Room reservations will be held until 5:00 p.m. on day of arrival. To guarantee your reservation please fill in the required credit card information for Visa, Mastercard, and American Express. Cancellation notice must be given to the hotel at least 24 hours prior to date of arrival.
3. Deadline for Reservations: July 15, 1986.
4. Enquiries concerning accommodation or special requests should be directed to: Ms. Leslie Rich, Your Host Convention Service, P.O. Box 3594(S), Halifax, Nova Scotia, B3J 3J2, (902) 422-8336.

NAME:

(please print or type)

ADDRESS:

(Street)

(City)

(Prov.)

(Postal Code)

TELEPHONE NO.:

(Res.)

(Bus.)

Type of Room Required

☐ Single ☐ Double ☐ Twin ☐ Triple ☐ Other

Suites available upon request.

Arrival Date _____ Time _____ Departure Date _____

Name(s) of other occupant(s) if sharing _____

Indicate first **THREE** (3) Hotel Choices (Rates indicated single/double)

- | | | |
|--|---|--|
| ☐ Halifax Sheraton (CDA Headquarters)
(\$95/\$105) | ☐ Prince George Hotel
(\$80/\$90) | ☐ Citadel Inn (CDHA & CDAA Headquarters)
(\$75/\$85) |
| ☐ Delta Barrington
(\$79/\$91) | ☐ Holiday Inn
(\$65/\$71) | |
| ☐ Chateau Halifax
(\$75/\$85) | ☐ Nova Scotian
(\$68/\$68) | |

Reservation Guarantee:

Name of Credit Card

Number

Expiry Date

Please Check Appropriate Designation

- | | |
|---|---|
| ☐ Dentist | ☐ Specialist _____
(Please list speciality group) |
| ☐ Hygienist | ☐ Student |
| ☐ Assistant/Office Personnel | ☐ Technician |
| ☐ Other _____ | (Please specify) |

Please send reservation form to:

Ms. Leslie Rich
Your Host Convention Service
P.O. Box 3594(S)
Halifax, Nova Scotia
B3J 3J2

1986

CDA NATIONAL CONVENTION

AUGUST 24-27

HALIFAX, NOVA SCOTIA

REGISTRATION FORM

Name: Miss/Mrs/Ms _____
Dr/Mr _____ (please print for name tags)

Address: _____

City _____ Prov _____ Postal Code _____

Telephone No.: _____

Name of Spouse, if registered: _____

Name and Age of Children, if registered (see below)

Name _____ Date of Birth _____

CDA PRE-CONVENTION SOCIAL EVENT Totals
SATURDAY, AUGUST 23, 1986
Harbour Sail: Hosted by local area Dentist/Sailors
Limited registration

\$20.00 per person _____

CONVENTION REGISTRATION

AUGUST 24-27, 1986

NOTE: Early registration will help in securing the hotel reservation of your choice. It can also mean savings in air fare, so make your plans early.

Please complete appropriate category

☐ **DENTIST:** General Practitioner
Specialist _____ (Specialty Group)
☐ CDA MEMBER/Foreign Dentist to June 15 after June 15
\$325.00 \$375.00
☐ Non-Member \$375.00 \$425.00

*Includes access to scientific sessions and exhibits, opening breakfast, two lunches, Sunday evening registration party and Tuesday evening Lobster Bash, daily exercise program - aerobics/running.

☐ **DENTAL SPOUSE** \$140.00 (each) _____

*Includes access to scientific sessions and exhibits, Sunday evening registration party, Monday Fashion Show and Lunch, Tuesday Tour, and Tuesday evening Lobster Bash, Halifax walking tour, Wednesday morning Seminars, daily exercise program - aerobics/running seminars.

Indicate Tour Preference: South Shore _____
Annapolis Valley _____

☐ **CHILDREN** \$60.00 (Each) _____

Ages 7-15 inclusive

Deadline Date: June 15 - Limited registration

Includes a sports day, Citadel tour and lunch, double decker bus tour of Halifax, magic show, films.

☐ HYGIENIST	to June 15	after June 15
☐ Full registration		
☐ CDHA Member	\$125.00	\$150.00
☐ Non-Member	\$250.00	\$300.00

*Includes access to scientific sessions and exhibits, daily aerobics, Sunday Harbour Cruise (pre-registrants only), Sunday registration party, Monday opening breakfast, Monday CDHA President's luncheon and Citadel Hill candlelight tour, Tuesday Lobster Bash, Wednesday brunch and learn.

☐ Daily Registration	to June 15	after June 15
☐ CDHA Member	\$ 55.00	\$ 65.00
☐ Non-Member	\$110.00	\$130.00

Day(s) required _____

*Includes that day's scientific sessions and exhibits only.

☐ **CDHA SPOUSE/GUEST** \$60.00 _____

*Includes access to scientific sessions and exhibits, Sunday Harbour Cruise (pre-registration only), Sunday registration party, Monday CDHA luncheon and Monday evening "Candlelight Tour of the Citadel".

☐ **DENTAL ASSISTANT/OFFICE PERSONNEL**

☐ Full Registration	to June 15	after June 15
☐ CDAA Member	\$125.00	\$145.00
☐ Non-Member	\$155.00	\$175.00

*Includes access to scientific sessions and exhibits, daily aerobics, Sunday registration party, Monday President's Luncheon, Tuesday Fashion Show and Luncheon, Wednesday Breakfast and Harbour Tour.

☐ **CDAA DAILY REGISTRATION**

☐ CDAA Member	\$55.00
☐ Non-Member	\$65.00

*Includes that day's scientific sessions and exhibits only.

☐ **CDAA SPOUSE/GUEST** \$50.00 _____

*Includes access to exhibits, and Sunday evening registration party.

☐ **STUDENTS**

- ☐ Dental
☐ Hygiene

Complimentary
Complimentary

**Includes scientific sessions and exhibits only.*

☐ **TECHNICIAN/OTHER**

to June 15 after June 15

Please specify _____

\$ 50.00 \$ 100.00 _____

**Includes scientific sessions and exhibits, and Sunday evening reception.*

Monday's Walk About Lunch	\$ 8.00 per person	_____
Tuesday President's Lunch	\$25.00 per person	_____
Tuesday Night's Lobster Bash	\$45.00 per person	_____
CDA Spouses' Fashion Show and Lunch	\$30.00 per person	_____
Valley Tour	\$35.00 per person	_____
South Shore Tour	\$35.00 per person	_____
CDHA Monday Candlelight Citadel Tour	\$10.00 per person	_____
CDHA Wednesday Brunch and Learn	\$20.00 per person	_____

TOTAL AMOUNT OF CHEQUE ENCLOSED: _____

**Not included in registration package*

ADDITIONAL SOCIAL TICKETS

Sunday Evening Registration Party	\$35.00 per person	_____
Monday Opening Breakfast	\$12.00 per person	_____
*Monday President's Ball	\$50.00 per person	_____

CANCELLATION POLICY: Cancellations are accepted in writing before July 15, 1986, for a full refund. Requests after that date are subject to a 25% administrative charge.

**Note: Please duplicate and complete this form if more than one registration is required*

Make cheque payable to the CANADIAN DENTAL ASSOCIATION, and mail to:

1986 CDA Convention
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Do You Think You Have Arthritis?

If you think you do, you're in good company. More than three million other Canadians have it too. For the facts about arthritis, arthritis research and treatment programs, contact the office of The Arthritis Society nearest you. It's listed in your phone book.



THE ARTHRITIS SOCIETY

ADIDAS CDHA FUN RUN/WALK

Sunday, August 24/86

Registration Deadline Date: August 5, 1986

Entry Fee — \$8.00/Person

(Includes fun run T-shirt)

NAME (S) _____

ADDRESS _____

T-SHIRT SIZE:

☐ Small ☐ Medium ☐ Large

Send completed form and cheque payable to:

FUN RUN CO-ORDINATOR

P.O. Box 3593

Halifax South Postal Station

Halifax, Nova Scotia

B3J 2J0

ARTIFICIAL MOUTH USED IN DENTAL RESEARCH

Scientists at the University of Minnesota School of Dentistry supported by the National Institute of Dental Research in Bethesda Maryland (NIDR) have developed an artificial mouth for use in dental research.

The biomechanical system simulates both the chewing motion and the environmental conditions in the human mouth. The device is expected to have a major impact on dental research and treatment by expediting the evaluation of new materials for use in dental practice.

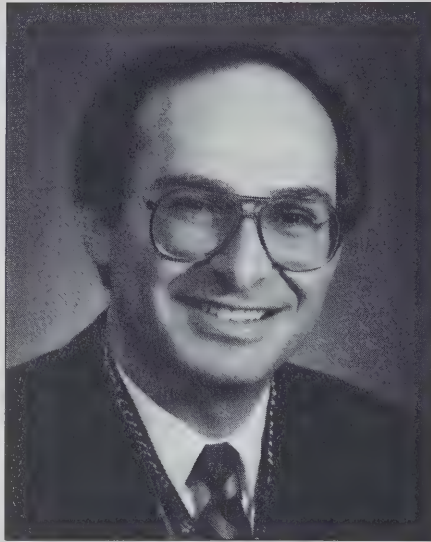
The device, nicknamed ART by its developer Dr. William Douglas and colleagues Drs. Ralph DeLong and Jon Dalrymple, can subject dental materials or restoration techniques to five years of wear in a few weeks. The system is an "Artificial Resynthesis Technology" system, thus the ART acronym. Using ART might save dental researchers considerable time in the development of new products, lower the costs of research and the amount of time of getting new technologies into the dental offices.

ART is an environmental chamber, which uses freshly extracted human teeth mounted in a flexible base to simulate the minor movement of the periodontal ligament. A system of jets in a chamber constantly circulate fluid at body temperature onto the articular surfaces. The chemical composition of the fluid and the temperature can be varied to fit the needs of specific tests.

The device also mimics the normal chewing, snapping and grinding movements of the human mouth. Using a modified version of a sophisticated engineering device, the researchers overcame technical difficulties and were able to duplicate the complex range of human chewing forces and movements. This makes it possible to study the occlusal consequences of wear.

The researchers also developed a computer system which works in conjunction with the device to measure changes in the surface anatomy of teeth and evaluates wear characteristics of restorative materials.

The first studies using the ART system are currently underway.



Dr. Bernard Dolansky

DR. BERNARD DOLANSKY NEW ODA PRESIDENT

Dr. Bernard Dolansky, an Ottawa, Ontario, endodontist, was installed May 13, 1986 as the President of the Ontario Dental Association.

Dr. Dolansky has been active in organized dentistry since 1974 and has held all executive positions in the Ottawa Dental Society. He was the Society's president in 1980-81. He has also held a number of positions with the Ontario Dental Association, including Chairman of the ODA's Continuing Education Committee from 1978-1981. He has also been an executive liaison to six committees of the ODA. He has been an ODA governor since 1981.

Nationally, Dr. Dolansky has been an Ontario governor to the Canadian Dental Association Board of Governors since 1985. In 1980, he was the Chairman of the Canadian Association of Endodontics national convention.

He graduated with a BA in 1966 from McGill University, then enrolled at the Université de Montréal Faculty of Dentistry. He received his DDS from that institution in 1970. He received his MS certificate in endodontics from Northwestern University in 1973.

Dr. Dolansky maintains a practice in endodontics in Ottawa, and is married with three children.

BOB MCALLISTER GREAT HUMANITARIAN DIES AT AGE OF 57

He was a frail man, and suffered in recent years from a serious liver ailment. But that didn't stop him from making an enormous contribution to the better health of people in less fortunate countries.

Bob McAllister died on May 2. He was 57.

Remarkable achievements

He became appalled at the lack of dental and medical equipment when on a holiday in the Caribbean in 1976. Two years later, when he had retired and had become chairman of his Azilda (near Sudbury, Ont.) Lions Club's international aid committee, he began to devote every minute of his time to the improvement of the health care in underdeveloped countries of the Caribbean. In more recent years, he extended this attention to South American countries, notably Peru.

Bob McAllister spearheaded this project, which eventually became the biggest ever undertaken by a single service club in Canada or the United States.

His methods soon earned him the title, "super scrounger" because of his original talents in locating surplus or outdated medical equipment, arranging to have it shipped to a central point, supervising the crating and loading on an aircraft or ship, accompanying the shipments personally and supervising and assisting in the installation in dental and medical clinics where it was so sorely needed.

His energy and zeal infected authorities to the extent that he was able to ship tons of equipment free on armed forces training flights and on ships travelling to Caribbean and South American destinations.

'Became supercharged'

Dr. Pablo Cano, a native of Peru now practising medicine in Sudbury, began to assist Bob McAllister in identifying the need for dental and medical facilities in Peru. He and McAllister made several trips together and became fast friends.

Speaking to a newspaper columnist following McAllister's death, Dr. Cano unabashedly placed Bob McAllister in the

company of Dr. Albert Schweitzer, Mother Teresa and Cardinal Léger.

McAllister's energy on any one of his delivery and installation trips left Dr Cano astonished. "He became supercharged. After 12 or 14 hours, he was still going strong," in spite of his frailty and poor physical condition.

Tributes

Eventually McAllister's great humanitarian achievements began to gain international attention at high levels. The President of the Canadian Dental Association in 1982, Dr. William R. Thompson, stated "he's a very remarkable individual. I think it is most commendable the effort that a small organization like that is making to the health care system in these underdeveloped countries, and it should be supported. Canadian dentists should support him with any used or old equipment they have."

McAllister also received warm commendations from former Prime Minister Pierre Trudeau for this "spirit of sharing and friendship."

Order of Canada

His country recognized his great service in 1983, when he was created a Member of the Order of Canada by the then Governor-General, Edward Schreyer.

When his remarkable talents were applied to the needs in Peru, the officials there were also impressed.

In 1984, the then Peruvian Ambassador to Canada, Señor Juan Pablo Fernandini

awarded a high honor to Bob McAllister. He was created a Commander of the Peruvian Order of Merit.

"I am proud as a Canadian, to have been treated with so much respect for the work I have been attempting to do" in Peru, he said, after receiving the honor.

Always modest about his achievements, he thanked CDA "for all the Canadian Dental Association has done for me. Making the project known across Canada has helped me tremendously," he said, referring to the account of his efforts that appeared in this Journal in 1982.

Presidential mourning

"Bob McAllister was a great benefactor of Peru" and his passing has been widely mourned in Peru, Dr. Oscar Maurtua, the present Peruvian Ambassador to Canada, told the Journal.

Dr. Maurtua said the President of Peru, Alan Garcia and the many poor people of that country who had benefitted greatly from Mr. McAllister's tireless efforts in their behalf, felt very badly to hear of his death.

"He was an extraordinary man, so supportive of the poor people in my country."

The wife of the Peruvian President, Pilar de Garcia, sent a cable to Sudbury when she learned that McAllister was gravely ill. She advised Bob McAllister and the family "we are praying for you and for your health."

Dr. Maurtua became familiar with McAllister's project while serving as a minister in the previous Peruvian government. He had marvelled at the way "Mr.

McAllister knew my country. He fell in love with Peru and that love was reciprocated by the Peruvian people," he said.

"God was so generous when He created Bob McAllister!"

Hope to carry on

Dr. Cano told JCDA that he will keep Bob McAllister's project alive, but believed it is well nigh impossible or improbable that another McAllister will ever be found.

Now, however, other Lions Clubs are offering assistance in the project and possibly a good coordinator may emerge. He would get assistance from a number of Lions Clubs in identifying the needs, taking note of donations of equipment here, and arranging pickup and shipment of the equipment to the countries in need.

Temporarily Dr. Cano is spearheading the ongoing project, and can be contacted for information in Sudbury, Ont., at (705) 675-7188.

HONORARY AGD FELLOWSHIP FOR HENRY M. THORNTON

Henry M. Thornton, chairman emeritus of Dentsply International, will receive an Honorary Fellowship from the Academy of General Dentistry at the AGD annual meeting in Philadelphia, July 14.

President in 1955

In 1955, Mr. Thornton was named president of Dentsply International. His administration at Dentsply, which spanned nearly two decades, was best known for its commitments to open communication and continuing education within dentistry.

Among his most notable achievements, Mr. Thornton pioneered the first comprehensive dental health care program, a plan which covered 3,500 Dentsply employees in 1959. His program has become the prototype for similar plans which today insure 87 million Americans in hundreds of companies across that nation.

As a founder of the American Fund for Dental Health, Mr. Thornton recognized the need for continuing dental education almost 30 years ago. In response to this need, he established the Student Clinicians Program of the American Dental Association and shortly thereafter, of the Canadian and British Dental Associations.

The program allows honors students to present table clinics to judges at the annual ADA meeting. These participants often become leaders in the profession.

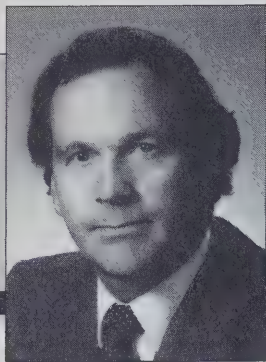
"Seed" money from Mr. Thornton's firm also helped to establish the Canadian Fund for Dental Education (CFDE).

Between 1970 and 1982, Mr. Thornton was awarded five honorary doctorate



Bob McAllister (left) is seen in this 1984 photo after being decorated as a Commander of the Peruvian Order of Merit by the then Peruvian Ambassador to Canada, Juan Pablo Fernandini, right. Señor Fernandini is presenting a citation signed by the President of Peru.

(Photo by Andor Andre Sima, Ottawa)



PRESIDENT'S COLUMN

Dr. Brad Holmes

CONVENTIONS To Be or Not to Be

The 1985 CDA convention in Ottawa was a smashing success in all areas but attendance. As I mentioned in an earlier article, those people who attended the convention had a marvelous time; the food, the music and the entertainment were all superb, as was the scientific session. However, because of the small number of attendees, the convention suffered a financial loss. When this happens we are quick to assess the viability and structure of future CDA conventions.

An ad hoc committee was put together to study the whole convention issue and to bring forward some recommendations to the Executive Council.

It is no secret that some people favour the idea of scrapping the annual CDA convention entirely. Fortunately, in my view, the idea has not gained a ground swell of support. I firmly believe that there is a valid purpose in holding a convention on a regular basis at a national level to bring members together from all parts of the country to enjoy fellowship and participate in the scientific sessions to keep updated on the latest developments in dentistry. It is also an opportunity to visit the commercial exhibits and learn from our colleagues in that area about the latest advances in the technological area of our profession. And make no mistake about it, the dental industry is a vital part of the practice of dentistry.

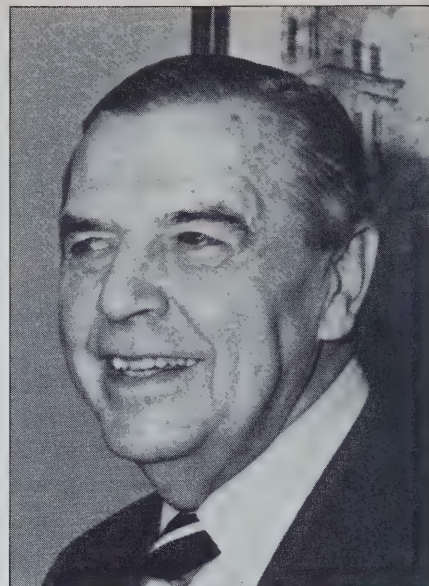
The ad hoc committee on convention planning will have a difficult job to sort out all of the suggestions and to make some meaningful recommendations. Some people favour a convention format similar to that of the Journées Dentaires. This tremendously successful convention is consistently the largest in Canada. The success of this convention is in no small part due to the efforts of Doctor Michel Jahjah, the convention chairman who is involved with the review of CDA convention format. Speaking of the Journées Dentaires, CDA is very grateful to the ODQ for the invitation to piggy back CDA's convention with theirs in the spring of 1987. We are looking forward to this joint venture next year.

Other people favour the Ontario Dental Association format — also very successful. Having just returned from the ODA spring meeting I am always impressed at how smoothly things seem to run. This convention has started on the second weekend of May for many years and this year almost fifteen hundred dentists registered for the events.

The Dental Industry Association obviously favours conventions in larger centres so the attendance figures are higher. While we at CDA recognize this concern, we also feel that the convention should be held in cities other than Montreal, Toronto and Vancouver. One suggestion has been put forward to have the CDA convention on an 18-month cycle; that is to piggy back with one of the large provincial meetings in the spring, then wait 18 months to have a convention in a smaller centre. This process could repeat so that every second convention would be in a major centre. Hopefully our committee will be able to wrestle with the various problems and help to lead us into proper planning and formatting for the future. If anyone has any views on this matter, please feel free to express them in a letter to me or to the CDA headquarters. All comments will be passed along to the committee for their deliberation.

I have purposely not said too much about this year's convention in Halifax. Doctor Ian Vogan, the convention chairman has expressed his views in an editorial in this issue. For any of you who know Ian or any of his hard working committee members, I am sure that you will agree that a more enthusiastic group would be hard to find. Doctor Andy Thompson and his family were in Toronto at the ODA meeting to promote the CDA Halifax convention. His three year old son Robert, certainly stole the show at our publicity session.

My final comment on conventions is: Don't miss Halifax! Atlantic Canada's people are the most hospitable in the land and they are looking for an opportunity to share with you their beautiful scenery and fine cuisine. Hope to see you all there in August.



Mr. Henry M. Thornton

degrees: two degrees in humane letters, from Loyola University of Chicago and York College of Pennsylvania; two law degrees, from Northwestern University of Chicago and Dalhousie University of Nova Scotia; and a degree in science from Georgetown University, Washington, D.C.

Honored by CDA

In 1982, Mr. Thornton was honored by the Canadian Dental Association. He received CDA's Distinguished Service Award from the then CDA President, Dr. Donald E. Williams.

Mr. Thornton retired from the offices of chief executive officer and chairman of the board of Dentsply International in December 1982.

The Honorary Fellowship will be bestowed upon Mr. Thornton during Convocation 1986.

NIDR INVESTIGATES NATURAL ADHESIVE

The National Institute of Dental Research (NIDR) in Bethesda, Maryland, is currently investigating the use of an adhesive produced by mussels, for use in dentistry, medicine and shipping.

Dr. Robert J. Waite, a University of Connecticut biochemist, has been studying mussels to learn more about the glue they produce that enables them to adhere to structures underwater. Dr. Waite's research is supported by grants from the NIDR.

Dr. Waite has been successful in identifying the main ingredient in the mussel adhesive and can now reproduce it. The reproduction of the substance will be a major breakthrough in everything from dental bonding to use as a repairing agent for ships. Currently, most adhesives need dry

surfaces to be effective. The mussel's glue works in a wet, saline environment as well as in a dry environment. The mussel's glue is completely natural, inert and will stick to any type of surface: rock, metal, glass or wood.

Dental practitioners foresee the adhesive as being used as a sealant, as a material for dental restorations, and as a bonding adhesive. The mussel adhesive could also be useful in periodontal surgery, to aid in the healing process by creating a strong bond between periodontal tissue and teeth.

Surgeons are interested in the compound because it might be used to coat sutured tissues to prevent infection, or hold together small broken bones or tendons.

The U.S. Navy also has an interest in the adhesive, hoping to use it to coat the hulls of ships to prevent fouling by marine growth and corrosion.

Mussel glue is made up mostly of a resin called polyphenolic protein. It also contains an enzyme called catechol oxidase that serves as a hardening agent. To learn the contents of the mussel's adhesive, Dr. Waite and his assistants, including microbiologist Dr. Christine Benedict, spent three years gathering tiny amounts of adhesive from more than 3000 mussels. Research eventually showed that a string of 10 amino acids make up the glue.

Since it takes about 3,000,000 mussels to purify about two pounds of adhesive, the adhesive must be synthesized by piecing together the amino acids that make up the glue. Dr. Waite, Dr. Benedict and Dr. Benedict's husband, an engineer, in 1985 formed Bio-Polymers Inc., a company that will produce and market new substances based upon the main ingredient of the mussel adhesive. Using the synthesis technique, Bio-Polymers Inc. can now reproduce enough of the adhesive for medical and dental applications.

In about two years, the adhesive is expected to be available for topical use in dentistry.

FDI — WHO JOINT STUDY CONFIRMS CARIES DECLINE

The incidence of dental caries is falling in a remarkably similar fashion in many geographically separated but industrialized countries, states a report recently published by the Fédération Dentaire Internationale, in London, England (FDI).

At the same time, the report concludes, developing countries generally, are not sharing in this decline.

The report shows that there has been a drop in dental caries incidence among children, ranging from 30 to 50 per cent, over a period of less than one generation, in nine industrialized countries. This is recognized

as a real decline, and not just statistical juggling.

Linked with fluoride

The reasons for this decline are linked with the widespread exposure to fluoridated water, fluoride supplements — especially, to regular use of fluoride toothpastes. Other factors include the provision of preventive oral health services, the ready availability of dental resources, and increased dental awareness through organized oral health education programs.

Joint study

The report is the result of a joint study carried out by the FDI and the Geneva-based World Health Organization (WHO) under the leadership of Professor C.E. Renson, of Hong Kong.

A thorough overview of the state of dental disease changes is provided, and the report points, in its conclusion, to the implications for dental manpower, which, it is expected, will be dealt with in the second part of the report, due for publication in 1987.

20 countries participated

For the compilation of the report, a pool of information was collected from the 20 participating countries and from the WHO Global Oral Data Bank, about caries, periodontal disease, water fluoridation, preventive programs, sugar consumption, dentifrices and fluoride products.

After sifting the available information, each of these subjects is presented and analyzed, and the important and consistent strands from each noted, while considering the variations from the norm.

The benefits of fluoridation of water are clearly shown. Eight of the countries demonstrated this, while others reported organized programs of regular fluoride rinsing.

Sugar consumption

Analysis of sugar consumption figures was fraught with complications, and few details were available of amounts used for purposes other than human consumption. The per capita data obtained by dividing total available sugar by population, are therefore crude, and only broad indications may be drawn regarding relationship between sugar intake and dental caries prevalence. Despite falls in national sugar consumption in some countries (Australia, Finland and the UK), it remains very high, even where dramatic declines in the caries rate have been noted.

The noted changes in oral health patterns have relevance to developing countries in indicating how caries, and perhaps periodontal diseases have been controlled and

prevented. It is inevitable that in industrialized countries with declining dental caries incidence there will be a decreased need for dental services, and hence, a change in the need for dental personnel.

Need for regular monitoring

The whole report emphasizes the urgent need for regular monitoring of oral health status in all countries, and for better personnel planning and production, in quantity and appropriate categories.

Part 2 of this report will deal with a recommended process for achieving these urgent needs.

Countries which were surveyed in the report were: Australia, Brazil, Columbia, Denmark, Finland, France, Federal Republic of Germany, Hong Kong, Ireland, Japan, Malaysia, the Netherlands, New Zealand, Nigeria, Norway, Singapore, Sweden, Thailand, the United Kingdom and the United States.

(The official title of the report is: Technical Report No. 24: "Changing Patterns of Oral Health and Implications for Oral Health Manpower: Part 1". Available from the FDI, 64 Wimpole Street, London, W1M 8AL. Single copies available free of charge to FDI Supporting Members, regular price, (U.S.) \$3.00.)

THE NATIONAL DENTAL EXAMINING BOARD OF CANADA

This is a second in a series on Dental Organizations in Canada.

CERTIFICATION

Of the 10,000 NDEB National Certificates which have been issued to date most have been awarded to graduates of Canadian dental schools, the others to graduates of many different dental schools from all parts of the world, where educational backgrounds vary widely.

The NDEB, while carrying out the mandate of its Act, attempts to keep its national standards consistent with Canadian practice standards and its examinations fair and suitable tests for these Canadian standards. Currently The Board awards its National Certificate to qualified applicants on the basis of two quite separate and distinct programs.

1) Certification of graduates of Approved Canadian Dental Schools

Prior to 1971, a graduate of an undergraduate dental program in Canada was required to successfully complete the NDEB examination in order to be certified by the Board. Due to pressures from a number of sources including the candidates them-



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

DID YOU KNOW: The C.D.A. headquarters at 1815 Alta Vista Drive in Ottawa was officially opened on March 10, 1977, (after occupying 234 St. George Street in Toronto for over 20 years).

The new building, a dream come true for men of vision, cost a total of \$1,376,453.00. Today the building and contents have an insured value of over \$3,000,000.00. The original building was constructed without an elevator for its basement and two stories (for cost saving?), so in 1984 an elevator was installed at a cost of \$129,761.00. This capital cost was added to the mortgage.

The current mortgage of \$520,000.00 is with the Toronto Dominion Bank at prime rate. It is repayable in monthly installments of \$2,260.00, plus interest, maturing in March 2005.

During 1985, C.D.A.'s rental space of 12,200 square feet was fully occupied, resulting in revenue of \$173,539.00. The total building maintenance cost in 1985, including mortgage and interest payments was \$294,800.00. Thus, when the rental revenues of \$173,539.00 are deducted, C.D.A. occupies its own space of 10,000 square feet for only \$121,261.00, or \$12.00 per square foot. A real bargain in Ottawa for prime commercial space, and we get to "really own the building in 2005".

DID YOU KNOW: That sometime during the 1977 move from Toronto to Ottawa the bound volumes of C.D.A. *Transactions*, for the years 1903-1948 were lost. If any readers can assist in replacing these historical official volumes please contact the C.D.A. Librarian, Trudi DiTrolio.

DID YOU KNOW: The C.D.A. Library was first established in 1951. In 1967 the facility was officially named the Sydney Wood Bradley Memorial Library in honor of its benefactor, Dr. Bradley, an Ottawa orthodontist who left a \$50,000.00 bequest.

It operated as a traditional Library until 1981 when a "Resource Centre" component was developed in order to better communicate with the profession. The modern miracle of electronics now makes available *FREE*, to all C.D.A. members, MEDLINE literature searches. This is a computerized information retrieval system which provides access to more than 3,000 dental and medical journals and instantly makes available bibliographies of varying length and depth of topic coverage.

The Library/Resource Centre's growing statistics — 514 requests for information in 1982 to 5,676 requests in 1985, a ten-fold increase — is indicative of an extremely beneficial C.D.A. member service . . . a service of communication and knowledge.

Any C.D.A. member in need of information can call the Library/Resource Centre COLLECT, 613-523-1770.

DID YOU KNOW: *Historically*; Editorial from the Dominion Dental Journal, September, 1904. "When the history of Canadian dentistry is written the organization of the Canadian Dental Association will stand out as one of the landmarks of progress in Canada and the world. A broad and more national and international spirit has been breathed into the profession. . . . Those who had the honor of assisting in its organization should feel proud. It is their duty not only to maintain the Association in its high position, but also to guard against the introduction of self-seekers who always bring ruin to any association."

selves, this policy was changed in 1971, when the NDEB decided to recognize the examinations and evaluation administered by Canadian faculties of dentistry and issue certificates to current graduates of these faculties without further examination. The conditions for certification of current graduates were established to be 1) graduation from an undergraduate dental program approved by the Council on Education and Accreditation of the CDA and 2) application for the certificate to be received at the NDEB office no later than March 31 in the year of graduation.

This system obviously places a great deal of responsibility on the dental school accreditation program which is administered by the Council on Education and Accreditation of the Canadian Dental Association. By 1971 all parties concerned were of the opinion that the CDA accreditation program had matured to the point where it merited this trust. The accreditation-certification-licensure mechanism thus became operative.

2) Certification by Examination

As mentioned previously, many applicants for the NDEB certificate are not graduates of Approved Canadian dental schools. To ascertain if these dentists can meet Canadian standards and are therefore eligible for the National Certificate, an elaborate examination system has been developed. Its purpose is to establish whether or not a candidate possesses the necessary cognitive and clinical skills to practise dentistry with competence in Canada. The examination comprises a written and a clinical test, the latter being subdivided into three parts.

The written examination utilizes the objective multiple-choice format. Six written examinations of three hours each provide a good umbrella coverage of dental practice topics. Examiners are specifically selected for their competence in the various subjects. They are charged with developing and maintaining a bank of appropriate test items as well as selecting the test items for the examination papers. The tests are marked by computer.

Prior to the examination, candidates are provided with an examination outline and a list of suggested reference texts along with all the necessary logistical details.

The clinical tests are held twice a year at selected dental schools in Canada. Each of the three parts of the test run for 2½ days spread over an 8-day period. Part A consists of diagnosis and treatment planning for removable partial dentures and selected restorative procedures performed on articulated ivory teeth mounted in manikins.

Part B consists of a five part diagnosis and

treatment planning examination and a prosthetics and masticatory physiology examination.

A candidate must successfully pass parts A and B before being eligible to try part C which requires the management of patients in the preparation and insertion of selected operative restorations.

As with the written examination, a detailed precis is distributed to all candidates well in advance of the clinical tests. The examiners meet before the tests begin for purposes of orientation and standardization. They meet again immediately following the tests to compile results.

Unsuccessful candidates may request in writing the reason for their failure. An appeal mechanism is in place and supplemental examinations are permitted.

Clinical examiners must be licensed and active in the clinical practice of dentistry in Canada and have demonstrated a capability in evaluation procedures.

A pool of potential examiners meeting the above criteria is provided by the provincial licensing authorities. The NDEB Chief examiner selects examiners for a particular clinical examination from this pool.

Over the past five year period, approximately 450 candidates per year have received the Board's National Certificate by virtue of having successfully completed the undergraduate program of an Approved Canadian dental school.

During the same period, some 350 candidates per year have tried the Board's written and clinical examinations. Only about 20-25 per cent of these candidates have succeeded in obtaining the National Certificate.

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Renew your
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AD LIB

FEAR OF FILLING

by Cuspid

Cuspid has always been a coward about dentistry; indeed, while living variously in Canadian and US cities other than Toronto, he retained the services there of a dentist who seemed to specialize in treating cowards. While that dentist spoke interminably about golf — a subject in which Cuspid has no interest whatever — it seemed a small price to pay for the soothing chairside manner.

For those whose teeth are on edge or chatter uncontrollably even *before* they reach that chair, advice abounds. In his engaging book "Open please", Montreal dentist Dr. Irving Kruger says that "most people view the prospect of a dental visit with some dread, fear and awe. . . but generally regard the situation as a necessary evil". Kruger's solution — wit and humour. Curiously, however, Dr. Kruger places the onus for such wit on the patient rather than on the dentist. . . quoting such comments from patients as "I see that you're looking down in the mouth today"; "do you swear to pull the tooth, the whole tooth and nothing but the tooth?"; "you must be true to your teeth, or they will be false to you".

Surely, though, if humour is an antidote to the dental patient's fear and anxiety, it should be practised by the dentist. The problem, I suppose, is that all humorists need an audience . . . and the captive dental patient is hardly likely to be responsive.

In an article titled *The Etiology and Psychology of Dental Fear*, *British Dental Journal* (April 23, 1983) authors Hall and Edmundson note that "dental phobia is a complex problem and is by no means always a simple matter of fear of the dentist. Since most people cannot alter their personalities, the authors conclude, it is essential to deal with them as individual persons and not as a group of people who fear dentistry. Their particular phobia must be treated in the same way as any other phobia. The authors advocate not the stimulant of humour but the sedative of intravenous diazepam, which, they say, "is a most satisfactory method of . . . management of dental phobia in the adult patient".

In another study, reported in the *Journal of Behavioural Therapy and Experimental Psychiatry* (293-300, 1982) authors Klepac, Dowling and Hauge, reported that "avoidant subjects reported themselves more likely to put off and break appointments, rated themselves higher in overall fear of dentistry, and reported significantly longer time since their last dental treatments than their fearless counterparts".

Much of the literature on dental phobia traces the condition to unhappy or traumatic experiences at the hands of a dentist during childhood. Frightened children grow up to be frightened adults; they have children and they avoid taking them to the dentist. Dental disease progresses to a stage where it is comparatively difficult to treat and therefore treatment is more likely to be unpleasant. The procedures that are consistently rated highest in the fear index are seeing and feeling the needle; and seeing, hearing and feeling the drill.

Psychiatrist Dr. Uri Lowenthal of the Hebrew University, Hadassah School of Dental Medicine in Jerusalem, notes that "dentistry, like all other health specialties, is strongly interrelated with the behavioural sciences". While in clinical dental practice little attempt has been made to use the techniques of behaviour modification established by the behavioural sciences for treating and managing phobias, Dr. Lowenthal suggests that while specialized psychiatric skills are not always necessary in dealing with such cases, the dentist's own personal life experience, human understanding and interest in the patient's wellbeing are usually sufficient. He urges that "equal attention must be given to all data in both physical and psychological spheres if the patient's best interests are to be served".

Finally, in an article in the *British Journal of Medical Psychology* (1982) psychologist Jane Wardle reported on a study of 50 subjects and their attitudes to dentistry. She concluded that there is no relationship between anxiety ratings and either age or social class . . . but said that, on the whole, women rated themselves as more fearful than men. Added Wardle: "A dry mouth and sweaty hands were reported by a third of the patients of both sexes, while muscle tension, 'butterflies' and urinary frequency were reported by a third of the women".

However, Wardle concluded on a more optimistic note stating that expectations of pain make a significant contribution to dental anxiety but that dental patients generally expected significantly more pain than they actually experienced and "it is therefore possible that some dental patients, especially fearful ones, are unduly pessimistic about the possibility of pain". She suggests that, as well as keeping patients fully informed of the procedures, and adopting an appropriately soothing chairside manner "the dentist might also draw the patient's attention to the mismatch between experiences and expectations".

Cuspid, in the meantime, has been able to track down an Ottawa dentist who not only deals admirably with cowardice — but doesn't talk about golf.

DENTAL AWARENESS PROGRAM UPDATE

Dental Health Month '86 Revisited

As you read this, Dental Health Month '87 is already in the planning stages. We're planning to build on the successes of Dental Health Month '86. This year we had an April to be proud of. More provinces were involved . . . more people contributed more ideas . . . there were more innovative and dynamic projects than ever before.

Thanks to Colgate

Of all the materials produced, the most visible — and, for many people, the most significant — was the 2nd National Dental Checkup, the 12-page adult dental health quiz.

Thanks to Colgate, sole sponsor for the project, the Checkup reached over four million Canadians through *Chatelaine* magazine. That's almost one out of every six people in the country!

Of the 500,000 extra Checkup copies that were printed, thousands were distributed through pharmacies and mall displays. One of the most interesting uses for the Checkup is as a communication tool in the dental office. One dentist, Dr. David Burstein of Toronto, got in touch with the Dental Awareness Program to explain how the Checkup works for him.

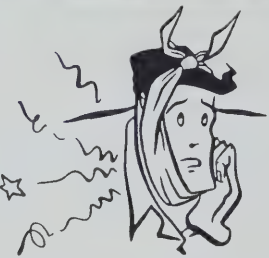
"At first I'd just leave copies out for patients to pick up", said Dr. Burstein, "but after a while I started to hand it out personally. I give a copy to all my patients and suggest they take the quiz. It's a success — people are really interested, and they're surprised by what they don't know."

Waiting Till it Hurts: Dental Emergency in B.C.

The College of Dental Surgeons of British Columbia recently needed some expensive restorative work to repair a "communication emergency". Happily, the emergency is over. But now, says managing director Ken Croft, the province's dentists can't forget about "preventive maintenance" — sustained public awareness programming.

The roots of the problem go back to the days before the Dental Awareness Program. The source of the trouble: a provincial politician and executive director of a local insurance company, who seems bent on achiev-

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WAIT
UNTIL IT
HURTS**



If it takes pain to get you to go to the dentist, you're asking for trouble. Dental problems usually exist long before there's any noticeable discomfort. See your dentist for preventive checkups.

DENTAL HEALTH
Good For Life
CANADIAN DENTAL ASSOCIATION

ing political ends through confrontation with the health professions.

A few years ago he'd hit the headlines by accusing dentists of overservicing and fraudulent billing — leaving a bad taste in people's mouths even after almost all the accusations had been proven false. Then, more recently, his insurance company mounted a major radio advertising campaign, overtly designed to inject price competition into the dental field.

This time the College retaliated by arranging their own media spokespeople and produced their own advertising campaign. Eight different radio messages were aired during Dental Health Month, each with a different appeal. Some were paid advertisements, others ran as public-service announcements. Some were straightforward; others were funny. Designed to com-

plement and reinforce the Good for Life resources, the messages pointed out the tremendous strides achieved by B.C.'s dentists in improving dental health for children and emphasized the importance of regular care and professional attention.

This approach to dental awareness programming worked well in an emergency, says Croft. "We've restored people's confidence, but we can't let them forget. The only way to get full value for the effort is by working to maintain that level of awareness."

Manitoba Makes it Happen

According to Manitoba Dental Health Month Chairman Dr. Terry Koltek, last year the Manitoba Dental Association Board felt they lacked communication expertise. But this April, Manitoba was buzzing with Dental Health Month activity — with graphics, giveaways, speeches, sponsors, media, and meetings.

"It takes a heck of a commitment", says Koltek. But it works. Here's what MDA did:

- Contacted the Dental Awareness program to arrange for a Dental Health Month planning workshop. At the workshop, DAP consultant Tim Hurson helped the Association's board and officers assess the Association's particular aims, resources, and target audiences — and helped them devise specific plans to make the most of them.

- Built a prototype for a state-of-the-art travelling mall extravaganza. It features a plaque check and special information displays on six subjects: prevention, nursing-bottle syndrome, mouthguards, aesthetic dentistry, periodontal disease, and denture care.

- Convinced Oral B to provide home-care kits for plaque check participants.

- Convinced the local cable television network to produce and air two dental health information videos. Each show lasts thirty minutes. Between them, the two cover a host of subjects — prevention, aesthetics, children's concerns, mouthguards . . . even "how to talk to your dentist"!

- Covered the bus routes — created a transit-shelter sign from DAP's stinger ad "Don't Wait till it Hurts".

- Organized and judged a province-wide poster contest for elementary school students.

- Arranged speaking engagements at local service clubs.
- Offered a communication-skills workshop free to all interested members. Dentists were encouraged to bring along their entire dental teams. The session lasted two hours. A professional psychologist led the discussions; topics included fear, passivity, and defence mechanisms. According to Koltek, the evening was enthusiastically received. "It really got people talking about their own feelings."

What's in the works for next year? At this point, there are plans to go farther with the mall programs, perhaps adding a complementary sound-and-slide program. "We'll use our two half-hour videos to train the people who'll be running the displays", Koltek explains. "We'd like to do more videos, too — maybe on orthodontia, perio and implants. And we're considering setting up a whole series of communication and team-building workshops."

The Manitoba experience is an excellent example of how provincial associations can use DAP resources to build first-rate programming for their own needs.

Cross-Canada Roundup

Face-to-face contact with friendly local dentists can work wonders in making dental

health real to an often indifferent public. That's why even the smallest-scale community Dental Health Month programs play an essential role in getting the Good for Life message out.

Some local organizers wrote to tell us what they did. Mall displays were a favourite everywhere; and surprisingly, many local dental societies used DAP's Dental Health Fact Sheets as story backgrounders for local media.

Here's a sampling of activities from around the country.

- In Quebec's Outaouais region: dentists offered a week of free dental checkups for senior citizens. More than 60 per cent of area dentists participated!
- In Fort St. John, BC: the Mayor launched Dental Health Month with a formal proclamation. Our correspondent reports an "overwhelming turnout" at the mall display.
- In Bathurst, NB: people organizing school trips to dentists' offices found that the children liked to chant the phrase 'Don't Rush Your Brush'.
- In Morden, MB: the welcome sign at the town line boasted a big Good for Life logo during April. Dental health gift packs were provided for expectant mothers.

Two particularly interesting programs took an aggressive approach to adult issues — by setting up awareness activities in the workplace.

- At the office of the Régie de l'assurance-maladie du Québec (Quebec's provincial health insurance program): lunch-hour dental awareness activities included microscope, laser, and Cavitron displays as well as an open discussion on water fluoridation.
- In British Columbia's Ministry of Health building: provincial dental services director Dr. Alan Gray organized a program of before-work information displays, designed to catch the flow of traffic in the building. "We set up information stations on a different floor every morning," says Gray. "People leaving the elevators couldn't get to their offices without stopping and looking."

"We found there was a tremendous thirst for knowledge. Some people stayed for half an hour. They waited in line right down the hall — it was just like Expo."

The letters we've read so far have been great — but we're still waiting to hear from thousands of local organizers. Remember, the sooner you write, the better we can plan for next year. What have you tried? What worked? What didn't? Even a quick note helps. . . so just keep those letters coming.

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	May 30, 1986	April 25, 1986
Fixed Income Fund	51.83559	51.91729
Common Stock Fund	120.17464	119.99979
Money Market Fund	34.85591	34.56153
Balanced Fund	22.14624	22.01437

Interest rates:

Guaranteed Fund Term	*Interest rates as at	
	May 30, 1986	April 25, 1986
1 yr	8.75%	9.05%
2 yr	8.85%	9.30%
3 yr	9.05%	9.55%
4 yr	9.05%	9.55%
5 yr	9.50%	9.55%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

	May 30, 1986	April 25, 1986
	\$60,992,436	\$60,329,403

For further information:

Write: Canadian Dental Service Plans Inc.
Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

or phone, toll-free:

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PARTICIPATION 

Briefly

This month the Journal is pleased to acknowledge the contributions of two separate organizations for their support to endeavours of the Canadian Dental Association.

The first note of appreciation goes to Health and Welfare Canada, who provided financial support for the publication of the "Report of the Working Group on the Practice of Dental Hygiene in Canada". This article, which appeared in both official languages in the March 1986 issue, was distributed to all dentists in Canada, using the Journal as a vehicle. Health and Welfare Canada also provided the financial support for the distribution of the March 1986 issue to non-CDA members.

The second note of appreciation, goes to Oral-B Laboratories Inc. who are providing the CDA Convention in Halifax with several different kinds of support. The President's Inauguration Reception on August 22 is being hosted and in part sponsored by Oral-B, and a contribution toward the President's Ball is also being made by the company. In addition, tote bags are being provided for all delegates by the Oral-B Laboratories Inc.

The ADA News has advised that a synthetic third generation hepatitis B vaccine, which will probably be less expensive than the current vaccine, is being developed at the California Institute of Technology.

Researchers say the new vaccine will be more effective because it will contain all three antibody-producing proteins present in the hepatitis B viral coating. The vaccine presently in use contains only one protein.

This third generation vaccine is likely to be tested on humans within a year and may be commercially available within an additional five to seven years.

It had to happen.

Retail or commercial dental practices continue to spread across the landscape in Canada and the United States, in shopping malls and even large department stores.

It has prompted some people to refer to the practitioners in such practices as "McDentists."

In addition to attendance at the 1986 CDA Convention, August 24-27, the Canadian Academy of Restorative Dentistry is providing yet another reason to visit historic Halifax in August. This session is scheduled August 17-19.

Academy President Dr. D.C.T. Macintosh

notes that, in addition to a high calibre scientific program, members and guests may enjoy a harbor cruise, lobster party and a dinner dance.

Scientific sessions will include presentations in "Color in Ceramco metal restorations" by Paul Muia; "Perio/Ortho preparation for restorative dentistry," by Drs. Gary Foshay and Ed Hannigan; "Pain control in restorative dentistry," by Dr. Steve Brayton; "Where occlusal therapy ends and restorative dentistry begins", by Dr. Brian Kucey; "Polymer abuse", by Dr. Steve Duke; "Osseous Integration, solely or in combined dentitions", by Dr. Phil Watson, and "Prosthodontic management of the difficult ridge situation", by Dr. Ned VanRoekel.

Clinics will be presented by Drs. Richard Rhodes, Mike Roda, Hubert Gaucher, Vern Shaffner, Keith Routley and Brian Nord. (There are likely to be two more participants).

Most events will be staged in the Halifax Sheraton Hotel.

Postgraduate courses and graduate courses in dentistry will be held as usual at the Faculty of Dentistry, University of Toronto in 1986-87.

Full-time programs leading to a specialist diploma are presented in the following areas: dental anaesthesia, dental public health, oral pathology, oral radiology, oral and maxillofacial surgery and anaesthesia, orthodontics, paedodontics, periodontics and prosthodontics. All of the specialty programs provide suitable preparation for the Royal College of Dentists of Canada or

American Specialty Board Examinations, with the exception of dental anaesthesia which is not recognized as a specialty in the Province of Ontario.

The Faculty also offers full-time programs leading to the research degrees of Master of Science and Doctor of Philosophy. Candidates are accepted under the general regulations of the School of Graduate Studies, University of Toronto.

For more information, contact the Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto, Ont. M5G 1G6.

The Ontario Society of Orthodontists recently announced their executive board for the 1986-1987 session.

The new President is Dr. Martin Slater, of Downsview Ontario. Vice President is Dr. Rae Munroe of Stratford, Ontario and Secretary-Treasurer is Dr. Paul Levin of Mississauga, Ontario.

Immediate Past-President is Dr. Doug Beaton of London, Ontario.

Peter Dennett, Director of Retirement Services for Canadian Dental Service Plans Inc. (CDSPI) was recently the winner of a trip for two to Singapore.

Mr. Dennett won the trip as a door prize at "Marketing Expo" an annual event organized by Westin Hotels and Resorts, to thank major clients in the industry.

The trip for two was donated by Air Canada, Singapore Airlines and Westin Hotels.



Mr. Dennett is pictured receiving his prize at Westin's Marketing Expo 86' from left to right, Dave Evans, Vice President of Sales, Westin Hotels and Resorts, Paul Nix, Sales Manager — Eastern Canada, Singapore Airlines; Murray Shaw, Manager — Special Sales, Air Canada; (Peter Dennett), Bob Chamberlain, Director of Sales — North America, The Westin Stamford and The Westin Plaza, Singapore.

The International Association for Dental Research (IADR) recently announced the annual competition for the Prosthodontic Novice Research Award.

Abstracts for entries in the competition must be submitted by October 1, 1986. For more information, contact Dr. K. Wincal, School of Dentistry, Loma Linda University, Loma Linda, California, USA 92354 USA or Dr. John B. Houston, 700 Bay St. Suite 404, Toronto, Ont. M5G 1Z6.

The American Dental Hygienists' Association has designated October 5-11 as National Dental Hygiene Week in the United States. This is the second such event.

The purpose, the hygienists stated, is to focus greater public attention on the role of the dental hygienist and to emphasize the need for continuing oral health care.

The Canadian Medical Association recently announced the appointment of Dr. Leo-Paul Landry as Secretary-General-Designate.

The Secretary-General is the chief executive officer of the 40,000-member national association of physicians.

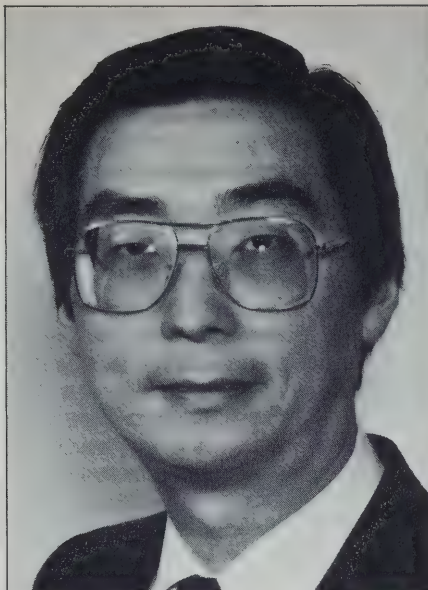
Dr. Landry, a native of Moncton, New Brunswick, is formerly Director of Professional Services at the Montreal General Hospital. He joined the CMA staff June 1, 1986, and will take over the chief executive officer's position in the early fall. Dr. Landry will replace B.E. (Woody) Freamo, who will devote his full energies to serving as Executive Vice President of MD Management Ltd., the wholly-owned CMA subsidiary that manages members' retirement and investment funds.

Dr. Landry, in addition to his medical degree, holds a Masters in Business Administration from Laval University.

He is married with three children.



Dr. Leo-Paul Landry



Dr. Henry C. Yu

Dr. Henry C. Yu, a research associate with the Faculty of Dentistry, University of Alberta, recently received the Academy of General Dentistry's Fellowship Award.

The award is given to AGD members who have completed more than 500 hours of continuing education within 10 years and who have successfully passed a Fellowship examination.

Dr. Yu is a graduate of Northwestern University Dental School (1976) and has a Doctor of Science in Endodontics from Boston University Dental School.

He is a member of the Royal College of Dentists of Canada, and Vice-President of the Alberta Academy of General Dentistry.

Cost is not the primary reason why many older adults do not seek dental care, according to preliminary results of a new study conducted by H. Asuman Kiyak, PhD, in the United States. It appears that attitude toward dental health may be a more important factor.

The study, supported by the American Fund for Dental Health, notes that although 11.8 per cent of the population of the United States is aged 65 or older, this segment accounts for 27 per cent of all health expenditures. However, the same population group has the lowest utilization rate for dental services.

A striking finding in the survey is that almost 50 per cent of these people have not sought dental services in more than five years.

The study, which is continuing, tested the relative effects of attitudes toward oral health by comparing them to demographic, socioeconomic, social, psychological and need variables that were examined in other studies.

The Canadian Hypertension Society has advised the Journal that it will sponsor a forum on "Community Approaches to High Blood Pressure Prevention and Control" on Sunday, September 21, next, from 1 to 5 p.m. in Toronto, Ont.

This forum on a matter of widespread concern, will precede the Society's 1986 meeting and the meetings of the Canadian Society for Clinical Investigation and the Royal College of Physicians and Surgeons of Canada.

The forum is open to all and there is no registration fee. Registration is not essential, but it is desirable.

In order to pre-register, or obtain further information, contact:

Community Approaches to High Blood Pressure Prevention and Control,
c/o Dr. Karen Mann,
Hypertension Unit,
Camp Hill Hospital,
1763 Robie Street,
Halifax, N.S. B3H 3G2.

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Letters

MS MESSAGE

On behalf of the 50,000 Canadians with multiple sclerosis, I would like to thank you for placing the Carnation day advertisement in the May issue of Canadian Dental Association Journal.

We are indeed appreciative of your support in making the public aware of multiple sclerosis and how they can help combat the most common neurological disease of young adults in Canada.

Thank you again for communicating the MS message.

Mary N. Vezeau

National Fund Raising Co-ordinator

PROFESSION REDUCED TO 'GUILD STATUS'?

The editorial in the April issue of the Journal ("Varsity Blues") raises once again the issue of education *versus* training in dentistry. Readers may recall that Dr. A.H. Melcher eloquently dealt with this issue in the Journal of Dental Education in 1984. He stated that "drawing a distinction between education and training has no place in a university. A university should produce human beings who are intellectually adaptable and who have the flexibility to respond to the changing and unpredictable demands that a modern society makes upon its citizens. . . . Training alone that is not part of education belongs only in the realm of instruction provided by non-university-based institutions whose primary . . . task is to teach people how to do things." Melcher made the apt distinction between universities and community and technical colleges when he noted that "universities are expected not only to pass on knowledge but also to create knowledge; . . . technical colleges . . . are required to do no more than pass on knowledge".

Hardie suggests that we can produce dental technicians (formerly, dentists) at a non-

university facility who, single handedly, are able to undertake the diagnosis, treatment and prevention of oral disease and like conditions; if so, this is a novel approach to a multi-faceted problem that has yet to be attempted elsewhere. These technicians (after all, Hardie states that "dentistry is technique (sic) oriented") would, presumably be on the same level as denture therapists, dental hygienists and dental therapists or nurses.

Webster defines a profession as "a calling requiring specialized knowledge and often long and intensive academic preparation". Hardie would appear to want to relegate the current profession of dentistry to guild status. Would dentists in North America wish to be addressed as "Mr." as Hardie would be in England with his B.D.S. or do they wish to be known as "Dr." the appellation earned in a North American University with the conferring of a D.D.S. or D.M.D. degree? Does he really believe that this new appellation (Mr.) would be one that would attract the brightest young people into what was formerly a profession? Where would research pertinent to dentistry be undertaken and how will these results be communicated to the students of dentistry?

Having interviewed every entering dental student in our Faculty for the last several years and having taught all of them during the first two years of their dental program, I have sensed very little of the student frustration that is suggested in the editorial. I think students should be credited with a higher intelligence to understand and appreciate the intellectual basis of dentistry than Hardie seems to attribute to them. I am happy that the majority of the recent graduates of university dental faculties are not the technicians Hardie wants to produce but, rather, intelligent, caring health professionals.

John T. Mayhall, BA, DDS, MA, PhD.
Professor of Dentistry and Anthropology

"Profession Reduced to Guild Status?"

INTENT OF EDITORIAL

I agree with the sentiments expressed by Dr. Melcher, and I do not wish dental students to be trained in a vocational institute. Therefore, it is unfortunate that Dr. Mayhall has misinterpreted the editorial, the intent of which I shall explain in a simpler manner.

The concept of a provincial organization teaching students "how to" practice dentistry has been accepted without obvious comment by academics, yet it is a method of apprenticeship training appropriately practised by technical colleges. The multitude of advertisements which praise the intimacy between dentistry and technology promote the image of dentistry as being technique oriented. I find these actions lamentable because they do not portray the image of a university discipline as defined by Dr. Melcher. The editorial exposed this hypocrisy, while suggesting that organized dentistry and advertisers may have an adverse influence upon senior students.

Dr. Mayhall has concerns regarding the use of titles. The term Doctor signifies that the bearer has obtained a passing grade in a specific educational program, as such it does not demand respect and reverence. These honours are earned from patients and colleagues upon demonstration of dedication, knowledge and skill. Perhaps it is naive, but surely students enter dentistry not to be called Doctor, but to offer empathy, clinical judgement, and technical expertise as health care providers. Dr. Mayhall is unaware that among British medical and dental fraternities the term Mister has a certain distinction — it refers to a surgeon.

John Hardie BDS, MSc, FRDC(C)
Associate Professor of Pathology
Faculty of Medicine
University of Ottawa

Resource Centre de documentation

MALPRACTICE AND QUALITY ASSURANCE

L'ASSURANCE CONTRE LES FAUTES PROFESSIONNELLES

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One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

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2. Heartwell, Charles M. and Rahn, Arthur O. *Syllabus of Complete Dentures*. 4th edition. Philadelphia: Lea & Febiger, 1986, 573 p. 1 copy.

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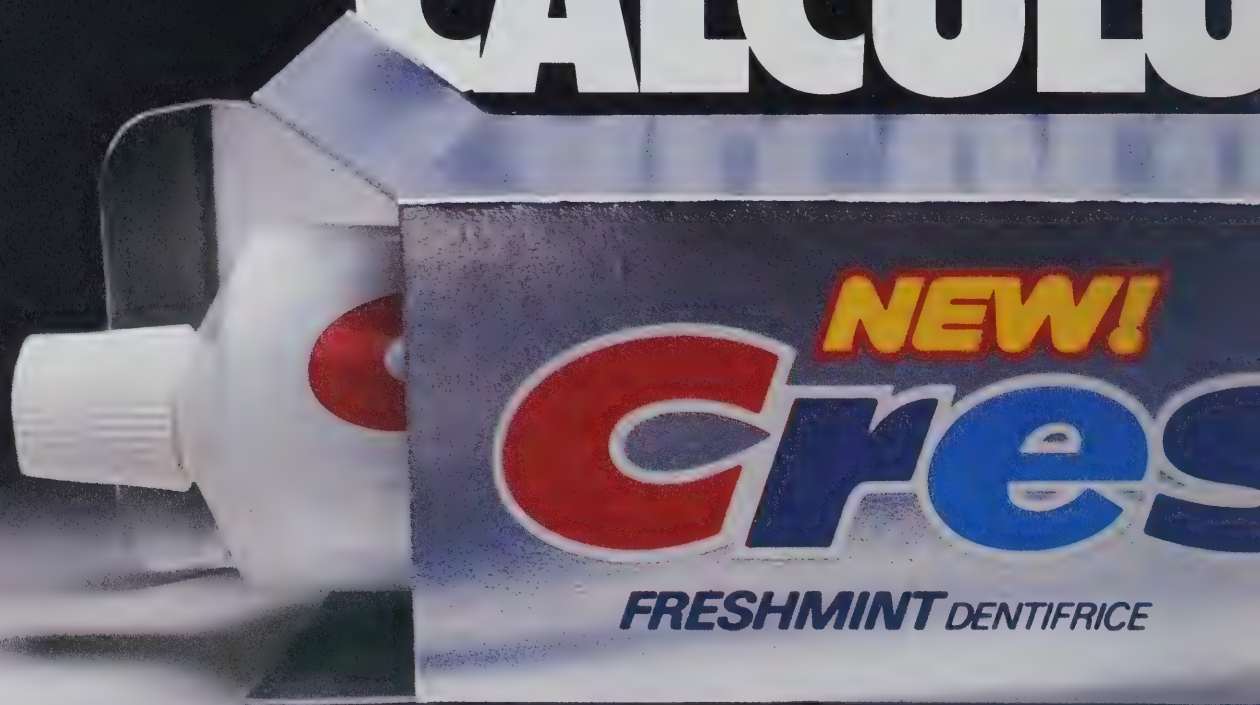
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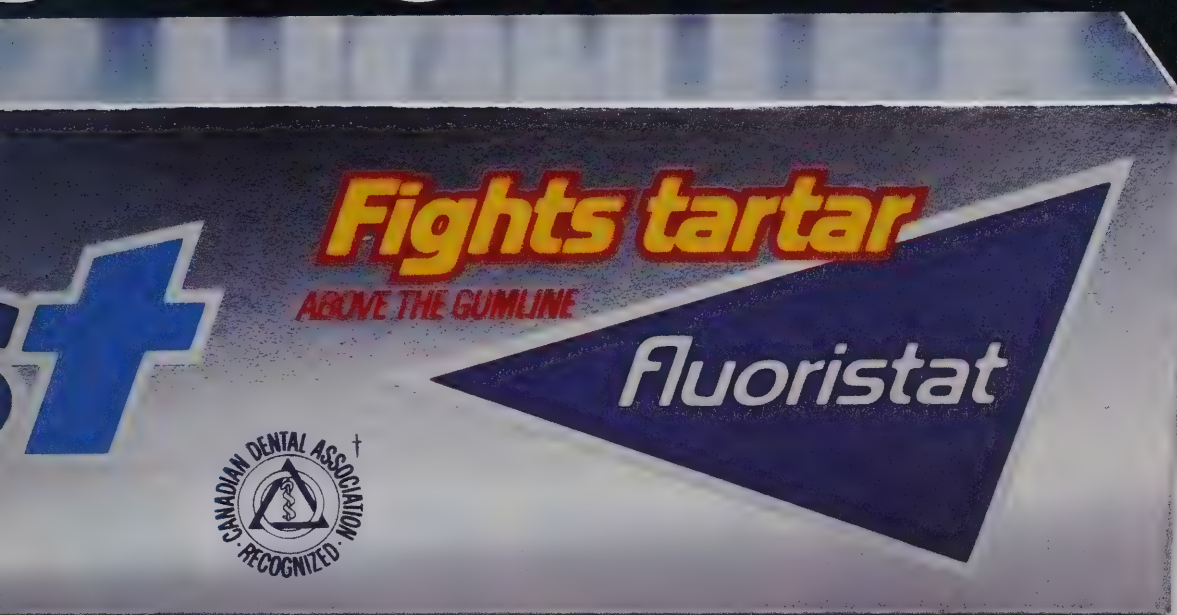
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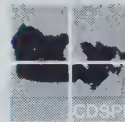
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MALPRACTICE

A CASE FOR SAFETY GLASSES

Burglind Gregg, BA, RDH
Jonathan Davies, BA, BEd, LLB
Halifax, N.S.

ABSTRACT

Standard procedures in today's dental practice may necessitate the use of protective eyewear. This will reduce the risk of eye injury, often the result of work hazards and accidents. An illustrative case report provides an example of how legal consideration can profit the profession's efforts to modernize and meet the challenges of our changing industrial/technological society. A survey of Canadian dental schools indicates that routine provision of protective eyewear for dental patients is evidence of a standard of care that could be accepted by Canadian courts.

SOMMAIRE

Aujourd'hui, dans les cabinets dentaires, il se peut que les procédures ordinaires imposent le port de lunettes protectrices pour diminuer les risques de blessures aux yeux qui sont souvent causées par des accidents ou des dangers liés au milieu de travail. Un cas illustre comment des considérations d'ordre juridique peuvent seconder les professionnels dentaires dans leurs efforts pour se moderniser et relever les défis qu'imposent les changements de notre société industrielle et technologique. D'après une étude effectuée dans les écoles dentaires canadiennes, les patients devraient porter des lunettes protectrices en tout temps lorsqu'ils se font traiter; devant les tribunaux canadiens, cette mesure pourrait être acceptée comme une preuve que les normes de sécurité ont été respectées.

Dentists should provide their patients with safety glasses or encourage them to retain their own glasses to reduce the risk of eye injury. Such injuries are often the result of work hazards and accidents.¹ Eye traumas may be caused by foreign bodies entering the eye during operative procedures (drilling, grind-

ing, trimming, polishing, etc.).^{1,2} In addition, chemicals, blows, abrasions, radiation and other causes of direct contact are responsible for a smaller proportion of injuries.¹ Many of these accidents could be prevented if patients wore safety lenses. The legal implications, based on a documented trend to routine use of eye safety equipment in dental schools, indicate that the practitioner may be legally responsible for eye injuries suffered during dental procedures, which would have been prevented had the patient been equipped with protective lenses.

In industry, legislation requires employers to comply with regulations to ensure the safety, health and welfare of their employees. Thus, it is required that suitable eye protection must be used if there is a foreseeable risk of eye injury. For example, in Nova Scotia the Industrial Safety Regulations require an employer to provide eye-shields or other suitable devices where employees are likely to be exposed to flying particles, hazardous substances, sharp objects or harmful light or other rays.³

Many dental offices recognize the importance of eye protection; yet, while dentists are aware of the need to protect their own eyesight, this awareness does not extend to the sight of their patients or employees. One possible explanation for this is the dentist's lack of exposure to cases where such injury has occurred.⁴ Dentists and their staff should be alert to dangers such as bacterial contamination from high-speed drill aerosol, flying debris or tooth fragments during procedures, as well as other potential sources of eye injury. Preventive measures could limit claims for malpractice. Failure to follow established standards of care may lead to legal liability.

Review

The chances of eye injury to dental

patients are increased with the four-handed modern dentistry concept — the patient in a reclining position, and the front delivery system.^{1,4} Eye injury can result from accidents involving the use of equipment (the high speed turbine, ultrasonic and other dental instruments, hypodermic needles) and chemicals (varnishes, formocresol, anesthetic agents) used in treatment and polishing procedures.^{1,4,5} For example, complications can result from splattering prophypaste in a patient's eyes. The bentonite component of prophypaste has been shown to have ocular toxicity.⁵

Furthermore, patients may present with histories of viral hepatitis, acquired immune deficiency syndrome (AIDS), and venereal disease (VD).⁶⁻⁸ Dental professionals have an obligation, not only to protect themselves but their patients against these and other communicable diseases. Protective eyewear provides protection, in addition to gloves and masks usually used, when treating patients with infectious conditions.^{6,8}

The increase in Canadian malpractice suits⁹ is influenced by many factors. Economic, sociological and psychological conditions have produced a new breed of dental patient. The age of "consumerism and assertiveness training"¹⁰ has brought the litigious patient, with identifiable signs and symptoms, to the courts. Malpractice suits often result in settlements in the patient's favor.¹⁰ Fear, greed, anger and rejection are among the psychologically motivating forces that bring patients to court against dental practitioners. Substantial financial awards to patients, with resulting increase in dental insurance premiums to dentists, should be sufficient motivation to take preventive measures against malpractice.¹¹ The dental record, good rapport, appropriate referral and legal knowledge may be the best defence against a malpractice suit.¹¹⁻¹³



Fig. 1. Patients' safety glasses

Legal Aspects

There has been little in the way of consideration in the Canadian legal or dental literature for dental malpractice as differentiated from medical malpractice. The increasing attention in the United States indicates a trend which, like other trends, is likely to arrive in Canada sooner rather than later. The legal principles considered in American courts are broadly similar to those in Canada and are thus persuasive, although not binding, authorities. Both American and Canadian courts recognize the principle that the basis for negligence is the breach of a recognized standard of care, which results in foreseeable damage to an individual to whom a duty of care is owed.

Malpractice is a form of the tort of negligence.¹⁴ Zinman¹³ outlines the conduct of a "reasonably prudent" professional. The physician/dentist in the professional relationship with his patient¹⁵ owes the patient a duty of care. The standard of that care is determined by the "degree of care and skill which could reasonably be expected of a prudent practitioner of the same experience and standing".¹⁵ Regardless of clear evidence of negligent conduct, loss must be established.¹⁵

To determine whether a health care provider is professionally negligent, the plaintiff must establish that:

- (i) the defendant owes the plaintiff a duty to take reasonable care to avoid foreseeable harm
 - (ii) a breach of that standard of care, as established by law, produced foreseeable injury or damage¹⁵
- These conditions must exist, concurrently, to give rise to a cause of action.

The onus is on the plaintiff to show there is a link between the breach of the standard of care and the injury. Contributory negligence of the plaintiff and failure to follow the professional's directions may be mitigating factors.

While there are alternatives (screening panels, arbitration, no-fault compensation, statutory coercion) to malpractice litigation,¹⁶ malpractice suits do play a role in improving the practice of medicine or dentistry.¹⁷ Most defendants are competent individuals who have made an honest mistake in judgement that causes harm. They are, however, financially responsible to the injured party.¹⁷ Few practitioners are involved in lawsuits. Although such lawsuits hurt the public image of the profession, they also raise the consciousness of the professional to the standard of care required. A more acceptable means of responding to external demands and pressures is action taken by the regional/local dental societies and peer review committees; however, malpractice cases that may be the result of an unfortunate accident for one, have positive consequences for society.

Illustrative Case*

Patient "A" presented at her dentist's office for a routine amalgam restoration. The patient wore glasses but was asked to remove them. During the course of the procedure, a dental instrument came into contact with the patient's eye. At the hospital, a penetration injury of the cornea was diagnosed. Infection developed and the patient was transferred to a major centre for a vitrectomy. However, this procedure was unable to reverse the damage done by the infection, and the patient wholly lost the vision of the injured eye. A lawsuit resulted.

In this fact situation, there are two possible negligent acts. The first is an act of commission — the instrument contacting and penetrating the eye. It is likely to be recognized immediately as suggesting liability and may be said to "speak for itself". The proof of negligence on the part of the dentist may be difficult if some reasonable explanation other than negligence is put forward. The second possibly negligent act is an act of omission — the dentist may not have followed accepted procedures for his patient's safety. In this case, it is apparent that proof of negligence may be more readily available.

In the determination of liability of the dentist, the court will consider whether there

has been negligence in rendering dental services. The courts have regard to three essential elements of negligence:

- (1) a duty of care — between dentist and patient
- (2) a breach of the standard of care expected of dentists of similar degrees of skill and learning, similarly situated.
- (3) damage which is reasonably foreseeable as a result of the breach of duty.

Of these, in the illustrative case, the existence of a duty of care arises from the contractual relationship of patient and dentist. Damage has clearly occurred and proof will not present difficulties. The standard of care will be the central issue in patient A's malpractice trial against her dentist. In order to determine a breach of the standard of care and therefore professional negligence, expert evidence as to the standard of care to be expected and whether the particular incident complained of is acceptable practice and thus falls within or outside that standard of care, will be brought forward. In cases involving professionals, this is usually established by calling one or more experts to give evidence as to the current state of the art and acceptable practice as to the particular breach of duty in question. Such experts are likely to be faculty members of dental schools.

A survey of Canadian dental schools indicates that 8 of the 10 Canadian dental schools have in place guidelines with respect to use of protective eyewear for students, practitioners, assistants and patients. Additionally, several dental schools have mandatory eye protection policies. In this circumstance, it can be expected that the expert called to testify will be in a position to say that it is accepted practice that patients wear their own glasses or be provided with protective lenses.

The concern at the academic level is expressed in numerous articles which recognize the risk of eye injury to patients during dental treatment. Increasingly, the literature also recognizes the importance of protective eyewear for patients to minimize the risk of such injury.^{1,2,4-6,8,18-20} The consideration of an issue in the literature and therefore the awareness of the practitioner are also important factors in determining the standard of care. A qualified expert is competent to testify as to the consideration in the literature of an issue.

The likely evidence of the "expert witness" as to standard procedures, therefore, will be to the effect that good practice, as taught in the dental schools and recognized in the professional literature, is to provide safety lenses. It is the professional's duty to keep up-to-date on new developments and procedures. Failure to put such procedures into practice may, of itself, be a negli-

*The illustrative case combines facts from several actual cases of which the authors are aware from their research and, in particular, Paleniks' — Eye Protection for the Entire Dental Office.²⁰

gent act if injury results which could have been prevented. The relative ease of providing protection against a risk balanced against the relative magnitude of the harm is a legally important factor in a court's determination of whether the standard of care requires the precautions to be taken.^{21,22} Consequently, if the court accepts the evidence of the expert witness called on patient A's behalf, liability may be found even if it can be proved that the contact with the dental instrument itself was not negligent (i.e. patient A moved), since the liability arises from the failure to provide the patient with safety lenses.

Survey of Dental Schools

A survey of 10 Canadian dental schools carried out by the authors in the Spring of 1985 to determine what policy (if any) was in place regarding the use of protective eyewear, resulted in a positive response from eight schools. All the schools responding had either a written or verbal policy in place. This seems to be in contrast to a 1978-79 survey of dental schools, which found that 62 per cent of North American schools did not require students to employ protective eyewear during procedures. Furthermore, 88 per cent did not require patients to wear eye protection. In fact, of the Canadian and American schools that did respond, 24 per cent routinely asked patients to remove their own glasses during dental procedures.⁴

The recent Canadian dental school survey indicates that some schools have policies that cover laboratory as well as clinic procedures. In addition, particular attention is paid to special circumstances (eg. patients presenting with risk factors of hepatitis, etc). Protective eyewear policies are generally enforced by faculty supervising students, and adherence to policy is encouraged in all schools. One school stated that patients must sign a note in the chart to state acknowledgement of the request to wear safety glasses but refusal to do so. All the schools responding made safety glasses available to patients and students, and some also provided assistants with glasses and encouraged their students to purchase individual, customized glasses. The safety glasses used in the dental schools varied from an inexpensive (\$1.50 per pair) industrial type, to medium priced (\$7.50 per pair) clear polycarbonate lenses with regular eyeglass frames, to a more expensive (\$50.00 plus per pair) prescription, customized type of protective eyewear. **Figures 1 and 2** illustrate the safety eyewear that operators and patients wear at Dalhousie University Dental School in Halifax, Nova Scotia. The dental literature gives descriptions of various types of safety glasses, including some with side shields for operative proce-

dures.^{1,2,4,19,20} For surgical procedures, an eye shield and protective gauze padding are recommended.¹⁸

Although there is no abundance of literature about malpractice suits in the dental school clinics in North America, a Supreme Court of Georgia decision²³ held that a dental school and its clinic instructors and students are not necessarily protected by the standard exculpatory clause contained in the typical medical consent form.²⁴ The dental school, in this case, was not exempted from the requirements to meet the standard of care necessary to protect the public because there was a requirement of reasonable care and skill incorporated in the Dental Statute. The teaching function, while important, was not given precedence over public policy of "health and safety of dental patients".²⁴ Goerth²⁴ concluded, based on this case, that the law holds the dental student to the same standard of care as the experienced professional, and that the only practical protection is some form of personal insurance. While consent forms may be an important legal vehicle for protection against lawsuits, the use of waiver clauses, or special release forms, may not exempt dental schools and institutions nor instructors and students.²⁴

Conclusions

Advances in technology for dental procedures bring increased potential for ocular injury. The literature suggests that increasing attention is being focused on the occurrence of eye injuries in the dental practice settings. Protective eyewear is one means of reducing the hazards. The illustrative case shows how incidents of eye injury may lead to malpractice actions, where liability is determined on the basis of compliance with a standard of care. A reasonable and prudent dental practitioner will be expected to abide by that standard and failure to do so may result in legal liability. The survey of Canadian dental schools shows that protective eyewear policies and measures are in place to prevent one of the most serious and irreversible of injuries.

There has not been the proliferation of malpractice suits in Canada as yet. Perhaps good management, rather than good luck, has resulted in few documented cases of dental liability. A risk management program for dental schools, optional at present, may, in future, become mandatory in the health care delivery centres south of our Canadian border.²⁵ While U.S. court decisions are not binding on Canadian courts, they may be considered persuasive authority. Dentists should be aware that where proven preventive procedures for injuries are available, a finding of malpractice may ensue if these procedures are not followed.

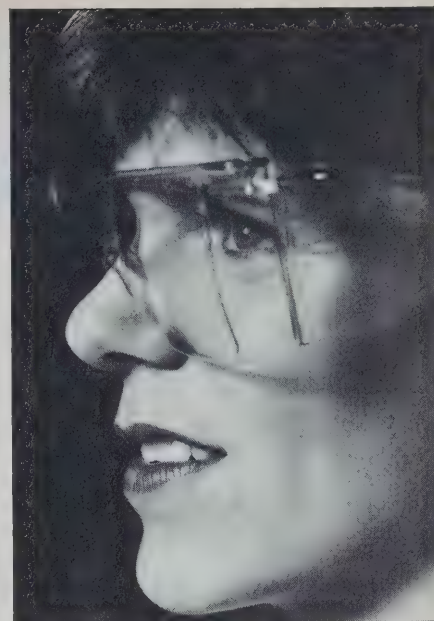


Fig. 2. Operators' eyewear

Summary

Malpractice suits encourage higher standards for dental health care delivery. An illustrative case report provides an example of how legal consideration can profit the profession's efforts to modernize and meet the challenges of our changing industrial/technological society. Canadian dental schools recognize the importance of preventing eye injury to both operators and patients. The routine provision of protective eyewear for dental patients is evidence of a standard of care that could be accepted by Canadian courts. Thus, as a standard for dental practitioners, failure to meet such a standard could, in circumstances where injury has occurred, form the basis for an action in negligence.

The authors would like to acknowledge the contribution by Dr. J. Murphy (Educational Specialist at Dalhousie Dental School) to the preparation of this report.

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Reprint requests to Mrs. Gregg.

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The Annual Meeting of the Board of Governors of the Canadian Dental Association will be held on August 22-23, 1986 (Friday and Saturday respectively) at the Sheraton Halifax, Halifax, Nova Scotia, commencing at 9:00 a.m. on August 22.

It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

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Book Reviews

"CHANGE YOUR SMILE"

Ronald E. Goldstein

Quintessence Publishing Co., Inc., 1984
Chicago, London, Berlin, Rio de Janeiro
and Tokyo \$23.95 U.S. 200 pages

To justify this book, the author stated in the acknowledgement that "Communication has always been a major problem in making cosmetic dentistry better understood." Also, we are aware that "Inform before you perform" has been the motto of our licensing bodies for many years.

Initially upon glancing through this book, a professional may be concerned that the words "cosmetic", "smile" and "beauty" are the major concern to the author; then one realizes that contained in the eleven chapters and 189 pages (with 147 exceptionally good illustrations and well-informed comments), are the views of two other contributors and 45 consultants from within dentistry and related professions.

The book is principally directed as information to the general public in understanding in detail one branch of dentistry and in less detail its potential related fields of dentistry and medicine. The book illustrates and promotes very well the potential of a team approach towards providing the best service to the public in this aspect of health care.

If this book is available in the reception room of individual offices, it can greatly contribute to the understanding of the members of the public when we are attempting to "inform before we perform". It may also serve to educate those practitioners who may wish to incorporate a greater degree of cosmetic dentistry into their practices.

*This book was reviewed by
Dr. Frank Popovich
Faculty of Dentistry
University of Toronto*

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Henry Lee, Ph.D., F.A.I.C.

Quintessence Publishing Co.
Chicago Ill. 174 pgs

As the title implies, this book is essentially a technique manual describing in detail the use of a brand of Restorative material, Lee Products from Lee Pharmaceutical. The author, Dr. Henry Lee, President of Lee Pharmaceuticals, makes no apologies for this approach but cites it as an advantage in that it makes the reading simple and more precise. Unfortunately, the author becomes too commercial in his attempts to promote his own products.

The textbook takes on the appearance of a cookbook with detailed instructions for the use of each product manufactured by Lee Pharmaceutical. This makes for simple and easy reading, but not interesting reading. Most readers would find it difficult because of the repetition of certain topics such as the caution for handling the etching agent which is repeated in several chapters. The description of Albion D Prophylactic Paste is repeated several times throughout the text. The reviewer was left with the impression that the textbook was a collection of monographs and instructions found in the individual packages of Restorative material.

But, the textbook does contain some worthwhile information. A chapter devoted to the mechanisms of Adhesion is well done. The author explains adhesion of dental materials to tooth structure in easy to understand language, with good definitions and illustrations.

Another chapter deals with the Design of Adhesive Dental Restoratives. Here the author gives ten basic rules which he describes as essential for good adhesive den-

tistry. He then equates these basic rules to G.V. Black's Principles of Cavity Preparation which form the foundation of restorative dentistry. The author also emphasizes the need for good operating procedures to ensure success with adhesive dental materials.

Exception is taken with the concepts implied and stated in the chapter dealing with adjuncts necessary for practicing adhesive dentistry. The use of the Ultra Violet Examination Light may be a little redundant because of the health hazard posed by ultra violet Light. The author does offer a warning about the use of this light source, but the potential for over use is still there and does present a health hazard to the dentist, patient and staff. In fact, the use of ultra violet light for the curing of the light cure material produced by Lee Pharmaceutical seems a little outmoded considering the wide spread use of the white light systems available in dentistry today.

The author also devotes three chapters to orthodontic bonding, describing in detail each technique. Granted, a slightly different formulation of material is used for each system, but essentially the technique could have been described in one chapter. The result of this approach is a repetition of information with overlapping and some confusion to the reviewer.

In conclusion, this textbook would not be suitable for undergraduate dental students, but certain areas could be used for teaching purposes. For the average dental practitioner the cookbook arrangement does make difficult reading, but it may be handy for the practitioner using solely Lee Pharmaceutical products.

*This book was reviewed by
Dr. Robert M. MacDonald
Faculty of Dentistry
Dalhousie University
Halifax, N.S.*

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June, July, August 1986
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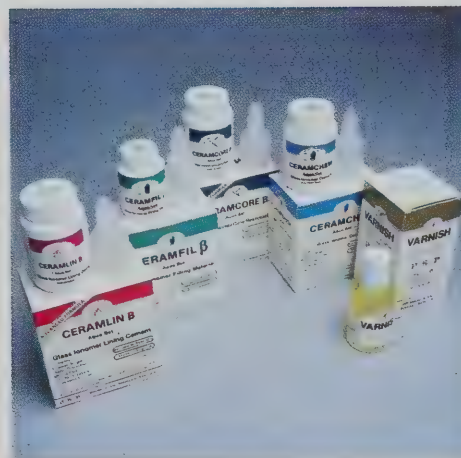
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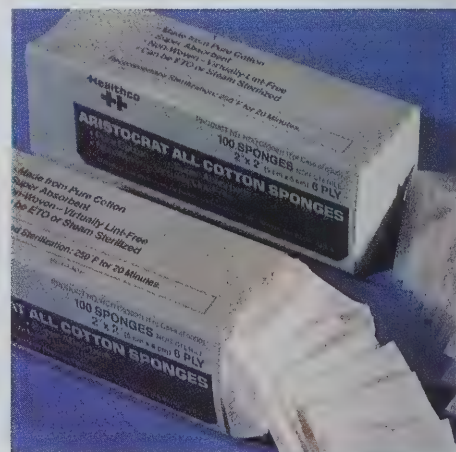
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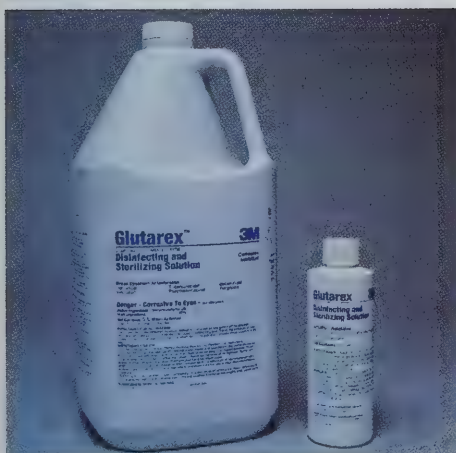
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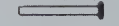
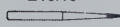
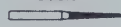
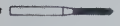
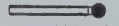
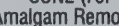
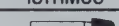
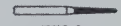
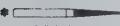
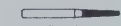
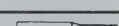
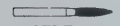
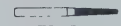
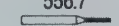
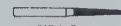
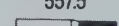
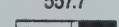
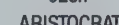
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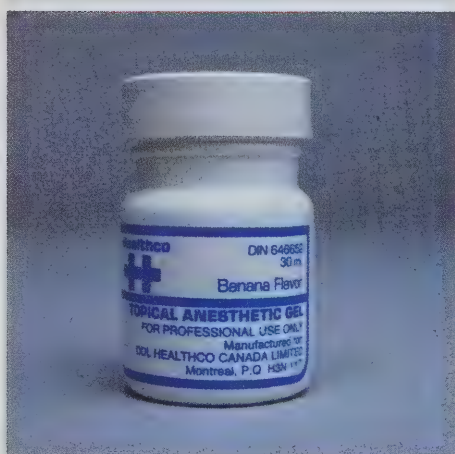
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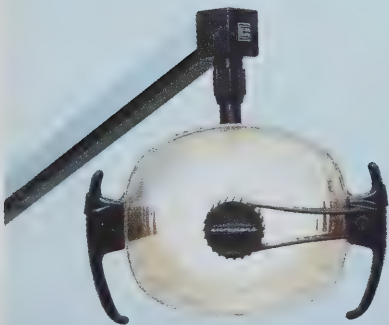
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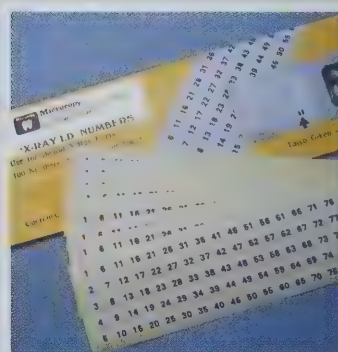
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MAXILLOFACIAL TRAUMA

Robert H. Mathog (Editor)

*Williams and Wilkins, Baltimore, Pub. 1984.
415 pages, illust.*

I've always had a soft spot for people with laudatory goals, regardless of how unattainable they may be. For as long as I can remember, the treatment of facial injuries in most Canadian centres has been less a reflection of the capability of available personnel and more the ability of certain dentally trained practitioners to penetrate the perceived milieu of our medical colleagues. In the United States, where the bulk of the books on the topic have been printed, this is borne out by an obvious segregation of dentist or physician authored texts. Therefore it was very refreshing to see this book appear, acknowledging that "for optimal care, one specialty group or individual can hardly profess such ability (and) best results are obtained from combined efforts in diagnosis and treatment" and then appear to follow through on this philosophy with a broad spectrum, intelligent and well illustrated review of the subject.

The first three chapters review the development, growth and anatomy of the face, as well as the structure and physiology of normal and healing bone. Generally these discussions are more detailed than most clinicians are willing to plough through, but for the student or resident they represent a fine compact and current information source.

The authorship of some of the chapters is curious. While one would expect to see (and does so) a discussion of neurological involvement done by a neurosurgeon, the choice of an otolaryngologist (also the editor) to review Posttraumatic Telecanthus is perhaps eyebrow raising, and two nonden- tists to describe Applied Dental Anatomy and Occlusion is, quite frankly, appalling. As one leafs through the book, he (or she) is struck by the apparent attempt to iden-

tify limited areas of responsibility for the different specialties. Early treatment of facial injuries, especially soft tissue trauma is the purview of the plastic surgeon, the fresh osteologic injuries are the otolaryngological realm and somewhere in the hazy background dentistry (read Oral Surgery) has an expertise to repair nonunions and malunions of the mandible. While a dentist authors a chapter on maxillary fractures, his discussion is restricted to pathogenesis and evaluation.

It would be unfair to criticize the content of this book. It is filled with reams of information and therefore if one accepts the book at face value (pardon the pun) it can join any number of other well prepared texts on the subject. However I can't help but think that political motivation fuelled this trip into print. The editor is implying that while all of the included specialists have a part to play in treatment, the main player is the ENT surgeon. This is a free country and he is entitled to his opinion. I must just as democratically disagree with his premise.

*This book was reviewed by
Dr. J.H. Gryfe,
an oral maxillofacial
surgeon from Toronto*

OFFICE PROCEDURES FOR THE DENTAL TEAM

Betty Ladley Finkbeiner,
CDA, RDA, MS, and
Jerry Crowe Patt, BS

*C.V. Mosby Co., 1985;
\$24.95 U.S.
Toronto, Ontario*

Even in this hyped up era of practice management, dentists still seem extraordinarily lax when it comes to running their business; their training in dental schools even today is not sufficiently rounded to cope with "the front office". The above authors have addressed themselves solely to this aspect of dentistry marrying the

"two dynamic professions" business and dentistry in a 300 plus page manual that deals extensively with every aspect of the dental business.

Chapters deal with subjects ranging from the Business Assistant to reviewing typing techniques; from appointment book control to office design. There are detailed interview forms, progress charts, office policies and inter office communication pamphlets. The chapter on telephone techniques is worth the price of the book alone; besides describing basic etiquette there is a useful little section on "red flag" phrases as well as current state of the art telephone equipment (American makes only).

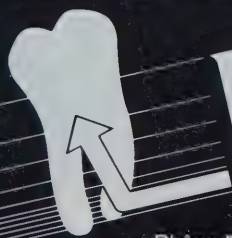
Luckily we Canadian dentists have avoided the plethora of insurance forms and codes that our American friends are saddled with; thus just skim the chapter on the above subject unless you want to feel smug that, as of yet, we are not dealing in any great amount with IPA's, PPO's, closed panel or capitation.

There is a chapter on Business Records and Tax Reports that deals with these subjects in exhaustive detail. Again Canadian dentists can flip through these pages quickly but should pay attention to the seriousness of the subject. The authors never second guess and everything gets written down, recorded and stored. Appendix B has a valuable chapter on correct punctuation and capitalization. Readers may roll their eyes skywards at this but how many of us can type a correct business letter down to the last comma, colon, or apostrophe?

In summary this is an ideal book for the dental team that needs to improve its business activities, correct sloppy office procedures and remove cobwebs to update poor procedural techniques.

*This book was reviewed by
Andrew G. Toeman, D.D.S., F.A.G.D.
Chairman Council Health Care C.D.A.
Class Coordinator and Lecturer Practice
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Montreal, Que.*

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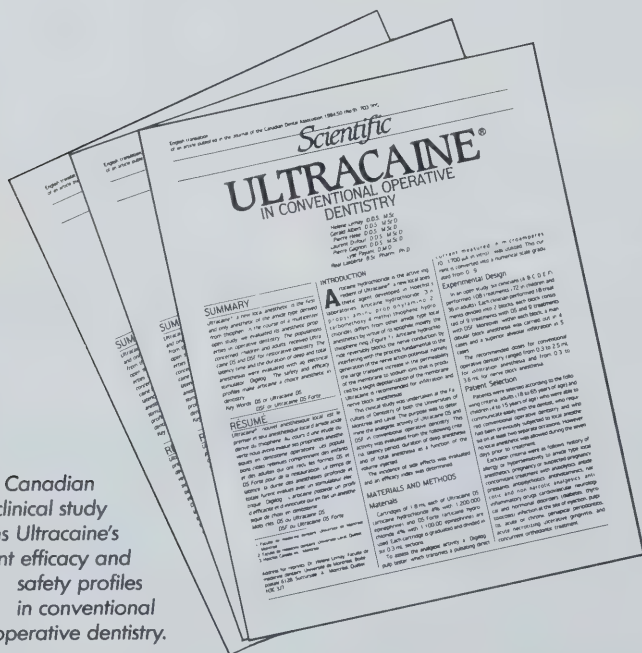
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1. Lemay et al: Ultracaine in conventional operative dentistry. *Journal of the Canadian Dental Association* 1984;50(No.9):703-708.

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ORAL BIOPSY TECHNIQUE

THE PATHOLOGIST'S PERSPECTIVE

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ABSTRACT

When oral lesions require a biopsy for definitive diagnosis, the clinician and the pathologist must work together for the ultimate benefit of the patient. The oral pathologist's interpretation of the biopsy specimen is dependent, in part, upon the clinician's ability to obtain sufficient undamaged and properly fixed representative lesional tissue. This article discusses and illustrates common pitfalls in biopsy technique such as iatrogenic thermal, crush, puncture and tear artifacts in tissue specimens. Suggestions are offered by which the clinician can better serve his patients by eliminating or minimizing these alterations which make interpretation of tissue specimens by the oral pathologist unnecessarily difficult.

SOMMAIRE

Lorsque des lésions buccales exigent une biopsie pour poser un diagnostic sûr, le clinicien et le pathologiste doivent se concerter pour le plus grand bien du patient. L'interprétation, par le pathologiste buccal, de la pièce de biopsie dépend en partie de l'aptitude du clinicien à prélever assez de tissus représentatifs de la lésion qui sont non endommagés et convenablement fixés. Dans cet article, il est question des principales difficultés que posent les techniques de biopsie comme l'échauffement, l'écrasement, la perforation et les déchirures causés par le clinicien lors des prélèvements. De plus, on suggère à celui-ci des moyens pour mieux servir les patients en éliminant ou en minimisant les altérations qui rendent l'interprétation des pièces prélevées inutilement difficile pour le pathologiste buccal.

The dental profession's responsibility to the public is to prevent, diagnose and treat oral disease. The proper treatment of disease is based on accurate diagnosis. Although some lesions such as recurrent aphthous ulceration, recurrent intra-oral and labial herpes simplex infection and lichen planus can frequently be diagnosed clinically, many others including leukoplakias, erythroplakias and tumours require histopathologic examination for definitive diagnosis. When a biopsy is indicated, the accuracy of the diagnosis, and consequently the appropriate treatment, are based on three main factors:

- a) the clinician's ability to biopsy sufficient representative lesional tissue
- b) adequate fixation
- c) the oral pathologist's ability to accurately interpret the histologic sections made from the biopsied specimen.

The purposes of this paper are:

- 1) to outline the various types and causes of artifactual tissue damage which may occur in biopsy specimens
- 2) to discuss difficulties which the oral pathologist encounters in attempting to interpret artifactually damaged tissues, and
- 3) to discuss various ways in which the dentist can better serve his patients by minimizing the various forms of damage to biopsy specimens.

THE ORAL BIOPSY: Avoidable Pitfalls

The oral soft tissue biopsy is a relatively simple surgical procedure involving the removal of all or part of a lesion for microscopic diagnosis. The excised tissue must be transferred immediately from the

biopsy site and immersed in a sufficient volume of fixative solution.

There are, however, several common pitfalls which may alter the biopsied tissue specimen before it is processed for histopathologic examination. These pitfalls may be arbitrarily divided on a temporal basis into three groups:

1. Tissue alteration before the biopsy is taken
2. Tissue alteration during the biopsy procedure, and
3. Tissue alteration after the biopsy is taken.

1. Tissue Alteration Before the Biopsy is Taken

Little can be done to prevent the manipulation of a lesion by uninformed or misinformed patients before a biopsy is taken. Often, patients will apply various ointments or creams to a lesion or mechanically damage the tissue by biting. However, the dentist should not alter the biopsy site by applying antiseptics (eg. iodine) or topical anesthetics to its surface. Similarly, local anesthetic infiltrations should be injected around the periphery and never directly into the biopsy site. The application of topical solutions may leave an unnecessary deposit on the tissues, while direct infiltration of anesthetic solution will cause volumetric distortion of the relationship of the tissues in the biopsy specimen.

2. Tissue Alterations During the Biopsy Procedure

The impact of bone dust, dentin dust or minute enamel fragments into some intrabony lesions is unavoidable as is the

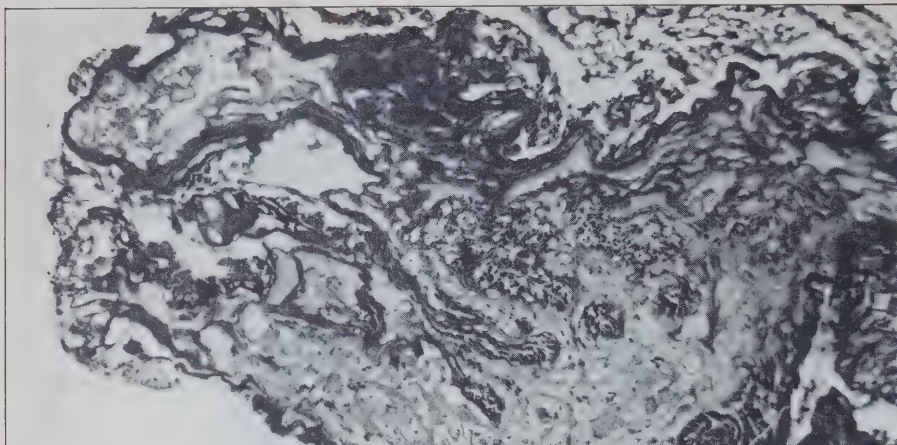


Fig. 1. This excision of a submucosal palatal lump was performed using an electrosurgical technique. A diagnosis of adenoid cystic carcinoma was made on the basis of the morphology of adjacent, less coagulated tissue, but assessment of the presence of cancer in the resection margins or of peripheral invasion of the malignancy into the surrounding connective tissue was impossible because of the electrosurgically induced artifact. (H&E, magnification $\times 55$).

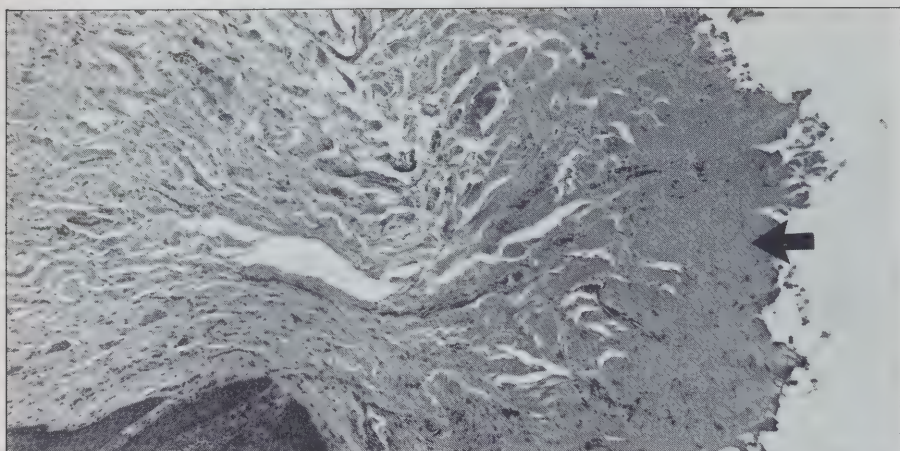


Fig. 2. An electrosurgical biopsy of mucous membrane exhibiting typical thermally induced artifacts. The connective tissue exhibits loss of cellular detail and amorphous eosinophilic coagulation of the collagen and ground substance (arrow). Histopathologic sections of lesions in areas such as these are extremely difficult and sometimes impossible to interpret. (H&E, magnification $\times 85$).

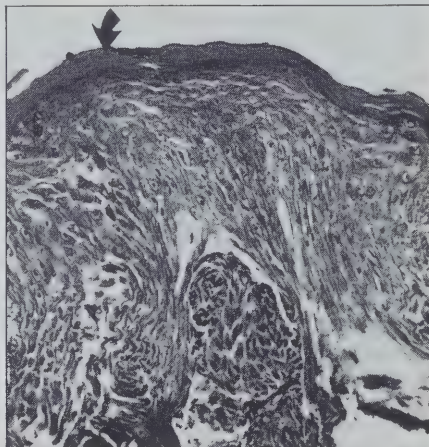
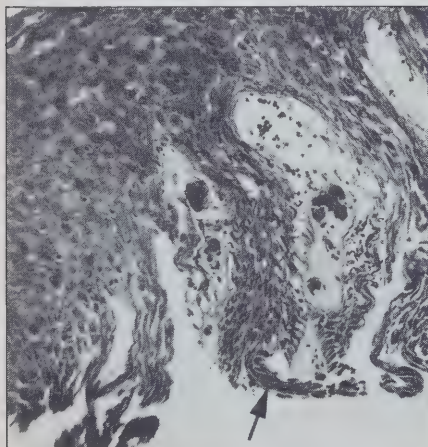


Fig. 3. This photomicrograph of an electrosurgically obtained biopsy exhibits a tiny specimen devoid of connective tissue. The epithelial cells become spindle-shaped, with nuclear pyknosis and cytoplasmic coagulation (arrow). Acantholysis is a common feature. The oral pathologist can identify only hyperkeratosis (curved arrow) but cannot make interpretations of other associated and potentially significant epithelial or connective tissue changes (H&E, magnification $\times 275$).

occasional starch granule dropped into the biopsied tissues from surgical gloves.¹ However, most common alterations which occur during the biopsy procedure are avoidable.

a) Electrosurgery

The literature concerning the use of electrosurgery for obtaining biopsy specimens is controversial. Some authors believe that this technique is acceptable² or even the method of choice for biopsying suspected malignant neoplasms,^{3,4} based on the assumption that thermally coagulated blood vessels and the reduced need for manipulation prevent or reduce the risk of iatrogenically induced tumor metastases. To the best of our knowledge, there are no controlled studies to support this concept. Other authors⁵⁻⁷ claim that electrosurgery produces coagulative artifacts in biopsy specimens, reducing the value of this type of biopsy procedure. Despite Oringer's^{2,3} claims and illustrations of non-altered electrosurgically excised tissue, our experience indicates that this technique often produces significant coagulation damage, particularly at the margins of the biopsy specimen (Figs. 1, 2). Small biopsies can be totally ruined by this technique, rendering diagnostic interpretation impossible (Fig. 3). These disadvantages and the knowledge that electrosurgically induced wounds heal more slowly than scalpel induced wounds⁸ suggest that the use of electrosurgery for obtaining biopsies is contraindicated except, perhaps, in patients where hemostasis is a significant problem. The use of a scalpel or other bladed instrument is therefore recommended, at least for initial removal of the specimen. Bleeding points in the surgical bed may subsequently be treated by electrocoagulation.

b) Crush, Puncture and Tear Artifacts

The biopsied tissues must be handled gently to avoid crushing, puncturing or tearing caused by excessive compressive or tensile force. Biopsies of buccal mucosa, lips, floor of mouth and tongue may be difficult to perform because the tissue retreats as the scalpel is applied. Many practitioners solve this problem by firmly grasping the lesion with forceps or hemostats, pulling on the tissue and incising below the instrument. This causes both crush and tear artifacts (Fig. 4) which may make histologic interpretation difficult or impossible. Toothed forceps when applied too forcefully, leave puncture holes, sometimes resembling mucosal pits or epidermoid cysts histologically (Fig. 5) and occasionally causing diagnostic difficulties for the pathologist. One way of avoiding this problem is

to insert a suture through the normal tissue which is to be included in the biopsy specimen. Gentle traction, sufficient to allow easy incision, may be applied by pulling lightly on the suture threads⁴ (Fig. 6a and b). If forceps are used, they should be applied gently to an area of normal tissue included in the biopsy, and never directly onto lesional tissue.

c) Unwanted Additions

Occasionally, unwanted tissues or materials are inadvertently included in the biopsy specimen, rendering histologic interpretation needlessly difficult for the oral pathologist. This is especially true of biopsies of gingival abscesses that accidentally include a fragment of calculus or plaque which may histologically mimic a local actinomycotic infection. Histopathologic tissue sections of a foreign body granuloma may be accidentally contaminated by numerous starch granules from surgical gloves, suggesting, erroneously, an etiology for the lesion.¹ Other unwanted additions include restorative and endodontic filling materials,¹ tissue dyes (used to orient a specimen), bacteria and fungi (Fig. 7b).

d) The Wrong Tissue

The biopsy must include all or part of the lesion and preferably, a border of normal tissue. Biopsies of epithelium only are usually non-diagnostic, or at best, only partially diagnostic (Fig. 3), because the nature of any associated connective tissue changes cannot be assessed histologically. A negative biopsy report does not necessarily mean that no lesion exists, but simply that the lesion was not present in the tissue sections examined by the oral pathologist. If a clinical lesion persists, the area should be re-biopsied. To best serve the needs of the patient, the clinician and the oral pathologist should be free to promptly communicate with one another in person or by telephone, to clear up any apparent discrepancies between the clinical and histopathological interpretations of a lesion.

e) Too Little Tissue

In general, the ability of the oral pathologist to correctly interpret a biopsy is directly proportional not only to the quality, but also the quantity of the specimen.⁶ Very small biopsies are difficult to orient correctly and easy to lose in handling. Shrinkage due to fixation and processing further reduces the size and usefulness of a tiny biopsy. The surgeon must balance the need to obtain adequate tissue for proper histopathologic assessment and the need for a biopsy site as small as possible in the best interest of the patient. Biopsies should be no less than 2-3 mm in dimension.



Fig. 4. Crush artifact (arrows) produced by excessive compressive force applied by a pair of forceps on the lesion. Both the epithelium and connective tissue are squashed and stretched, masking any changes which may have been present in these areas. (H&E, magnification, $\times 25$).

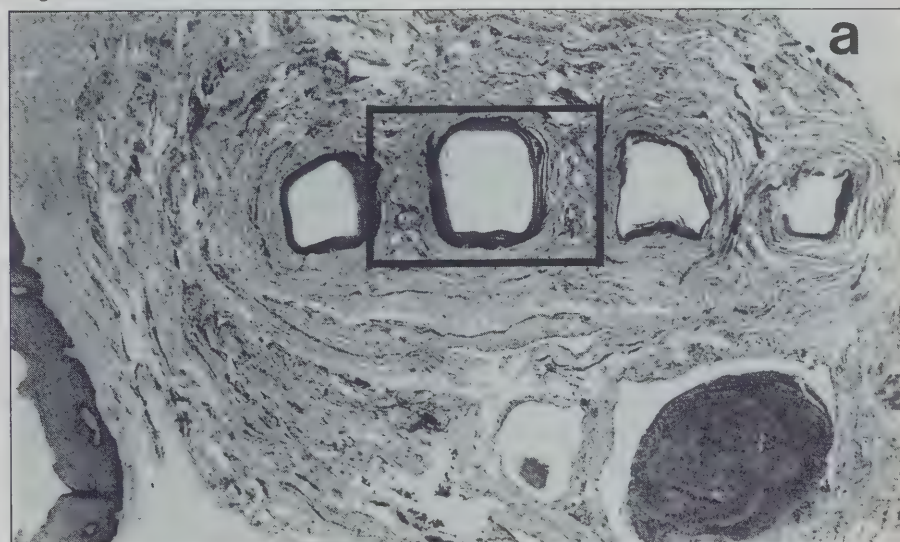
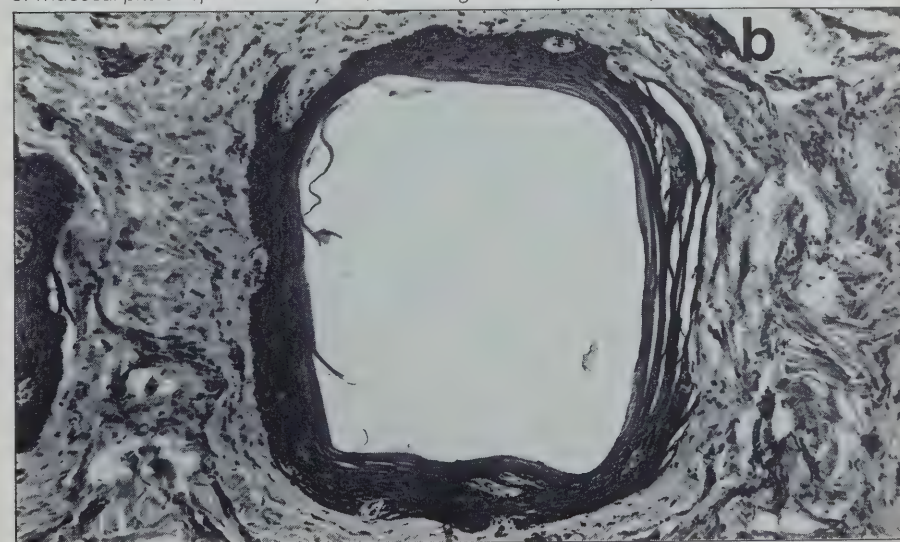


Fig. 5 (a and b). Toothed forceps produce puncture marks when applied too forcefully. Epithelium may be forced into the underlying connective tissue, simulating the appearance of mucosal pits or epidermoid cysts. (H&E. Magnification, a: $\times 25$, b: $\times 85$).



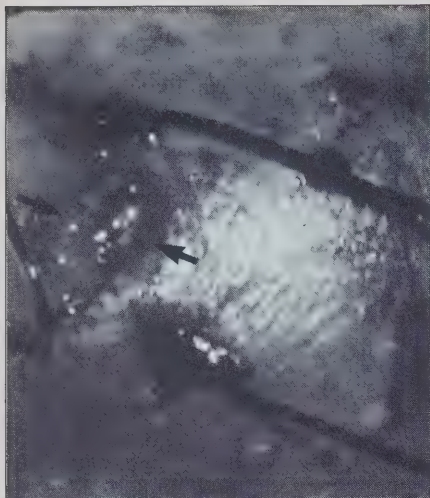


Fig. 6 (a and b). These photographs illustrate the use of a silk surgical suture to obtain a biopsy of a lesion of the upper lip. The suture is placed in normal tissue adjacent to the lesion (arrows) and incision performed with a scalpel (a). Traction is applied by gently pulling on the threads (b). (Magnification $\times 4$).

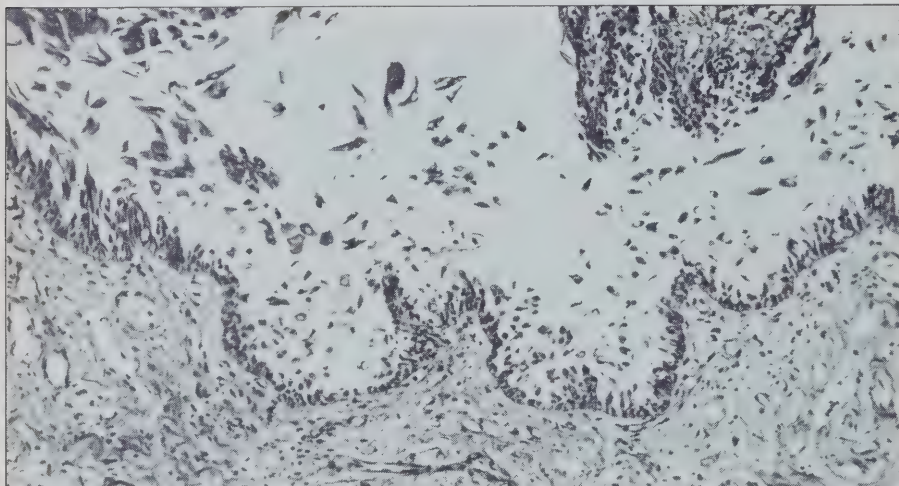


Fig. 7(a). This biopsy of the tongue was "fixed" in water for 2 days. The unfixed epithelium exhibits extensive acantholysis and cellular degeneration caused by autolysis. However, numerous basal cells of the epithelium are still attached to the connective tissue mimicking the changes seen in pemphigus vulgaris, a serious muco-cutaneous disease usually requiring systemic corticosteroid therapy to prevent death. The importance and difficulty in making this distinction are obvious. (H&E, magnification $\times 100$).

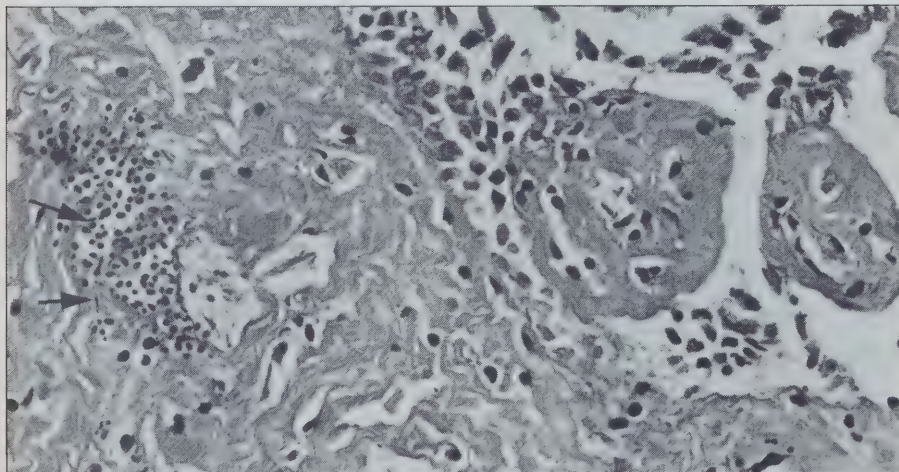


Fig. 7(b) This palatal lesion was submitted in water or saline. *Candida* species (arrows) which contaminated the specimen at time of biopsy have proliferated, giving the appearance of a fulminating candidal infection. (H&E, magnification $\times 350$).

Tissue Alterations After the Biopsy is Taken

Most dental schools in Canada offer a mail-in oral pathology diagnostic service. Biopsy kits, usually consisting of a vial of 10 per cent buffered formalin and a requisition form, are available to dental practitioners, who can store them until needed. When a biopsy is taken, the tissue is placed into the vial and mailed back to the diagnostic service laboratory with the completed requisition form. This arrangement has been extremely successful; however, occasional problems do arise.

a) Lack of Fixative

When a biopsy specimen is removed, it should immediately be immersed in a fixative solution such as a 10 per cent buffered formalin. The specimen must not be left on a counter top or surgical tray where it will dehydrate and autolyse. In order to ensure adequate tissue fixation, the volume of fixative solution should exceed the size of the tissue specimen by at least 10 times.⁶

In the event that a biopsy is taken and no biopsy kits with formalin are available, the specimen may be dropped into a jar of 70 per cent ethanol, which can be made from a mixture of seven parts absolute ethanol (available at most pharmacies as well as liquor outlets) and three parts water. If absolute ethanol is not available, drop the specimen into a jar of gin, vodka, rum or any other available spirits in a 20:1 volume proportion. Isopropyl alcohol (rubbing alcohol) or methyl alcohol (wood alcohol) should *not* be used. Water and saline are unsuitable transport media for biopsied tissues.

Occasionally, when a biopsy has been performed, the clinician is surprised to find that the vial of formalin in his biopsy kit contains only a white powder at the bottom. He often correctly assumes that evaporation has occurred, but incorrectly assumes that the white powder represents formaldehyde crystals. He confidently adds water and inserts the biopsy specimen. In fact, both water and formaldehyde have evaporated and escaped through an imperfect seal in the vial lid. The white powder is the buffer. The biopsy specimen placed into buffer alone does not fix and an artifact which resembles pemphigus vulgaris histologically is produced by the autolysis⁹ (Fig. 7a, b). This may cause considerable diagnostic difficulty for the oral pathologist. In such cases, the brief, concise history of the lesion submitted on the requisition accompanying the biopsy may be the first clue to the pathologist that the histologic appearance is an artifact of non-fixation. Clinical histories must be included with each biopsy submitted, and it is important that these

histories be both accurately descriptive of the lesion and clearly legible.

b) Freezing

Tissues may become altered en route to the laboratory. Canadian winters can be cold and freezing temperatures are common in most parts of the country. Tissue specimens mailed in the winter are at risk of being frozen in transport, producing significant freeze artifact which may make histologic diagnosis extremely difficult (Figs. 8a and b). Simple steps can be taken to reduce the risk or severity of this sometimes unavoidable problem. Ten per cent buffered formalin freezes at -11°C ⁵. The resulting ice crystals which form in the tissues severely distort the tissue architecture, often obscuring the nature of the lesional tissue. The following steps can be taken to reduce the risk of freeze artifact:

i) Do not put the biopsy into an outside post-box overnight in freezing temperatures. Take it to the post office building and drop it into an inside mail-box. This procedure will not influence the risk of freezing during transport by post office vehicles but will prevent refreezing of the tissues and reduce the duration of exposure of the biopsy specimen to freezing temperatures.

ii) The addition of ethanol to the formalin will lower the freezing point of the fixative solution. Okun et al¹⁰ claim that a 40 per cent solution of formaldehyde, 10 parts; glacial acetic acid, 5 parts; and absolute ethanol, 85 parts will not freeze at temperatures as low as -30°C . Since these solutions are usually not available in dental offices, the addition of ethanol (vodka, gin, etc) in equal volume to the formalin in the biopsy vial will reduce the freezing point of the solution and reduce the risk of freeze artifacts in biopsy specimens.

CONCLUSION

This article has attempted to discuss and illustrate significant artifactual tissue alterations which may prevent definitive diagnosis by the oral pathologist. It is hoped that the suggestions offered in this paper will help dentists to obtain sufficient tissue of excellent quality to allow the oral pathologist to make accurate diagnostic interpretations. In this manner, the clinician and the pathologist can work together for the ultimate benefit of the patient.

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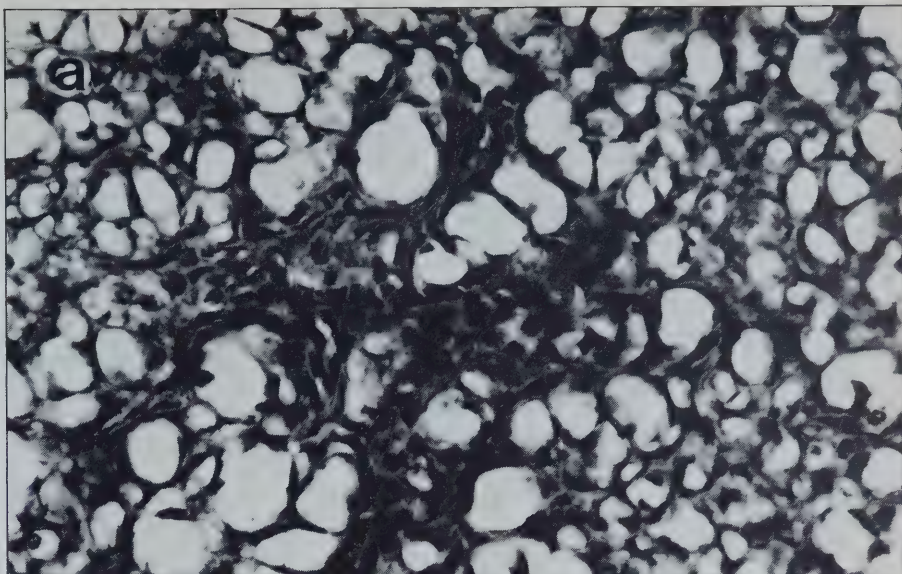


Fig. 8(a). Numerous vacuoles resulting from the thawing of ice crystals distort the architecture and cellular details in this gingival biopsy of a leukemic infiltrate, making interpretation by the pathologist very difficult. (H&E, magnification $\times 350$).

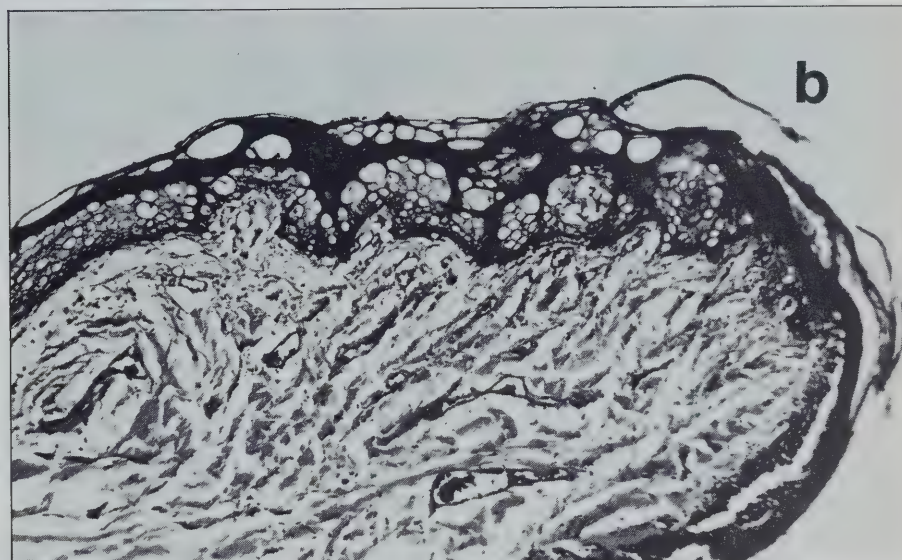


Fig. 8(b). Freeze artifact in the epithelium is illustrated. The epithelium is severely distorted by numerous vacuoles, making histopathologic interpretation difficult. (H&E magnification $\times 55$).

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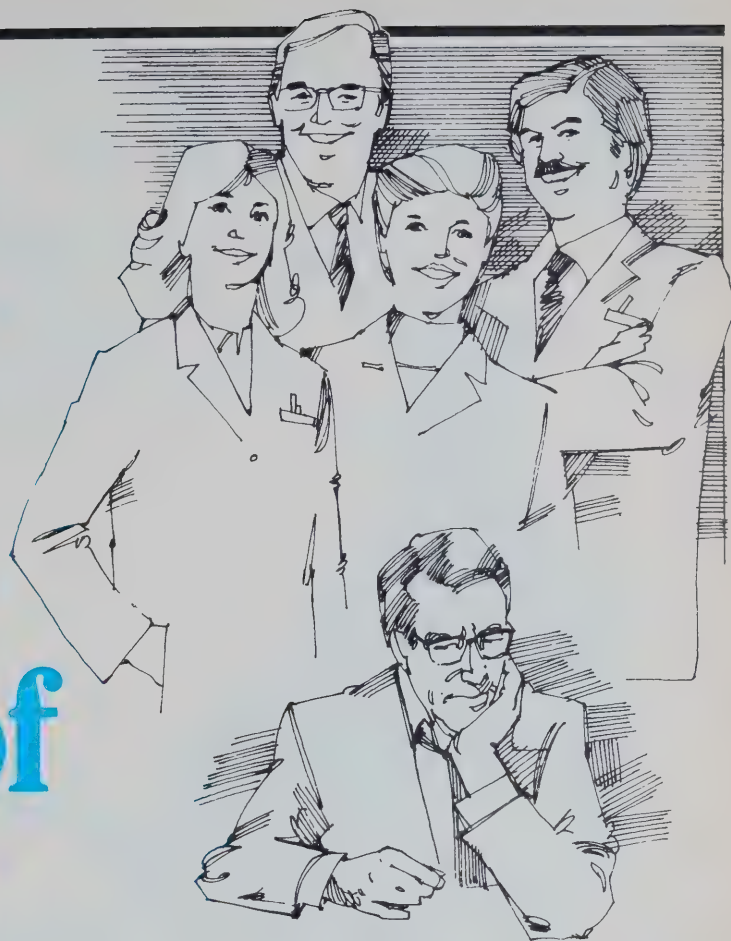
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POLYLACTIC ACID

SURGICAL DRESSING MATERIAL POSTOPERATIVE THERAPY FOR DENTAL EXTRACTION WOUNDS

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ABSTRACT

A biodegradable device, made of polylactic acid in the form of a sponge with inter-connecting, open cells, is described for postoperative application to dental extraction wounds. The capacity of this device to maintain its architecture and structural integrity when saturated with fluid blood allows it to function as a matrix for intrabony granulation tissue development as well as a support for alveolar mucosa which has lost its foundation of alveolar bone. The mandibular third molar wound was the experimental model. Two hundred and fifteen patients, each having bilaterally identical surgical procedures, received the experimental device in one wound while the opposite wound served as the control. Percentage of bone void occlusion and mucosal/granulation tissue coverage were observed for all participants at the 2-5 day postoperative interval. Selected patients were observed again on the 7-10th postoperative day. In the majority of patients, both experimental and control wounds produced equal and excellent wound healing. Where there was a difference between control and experimental wounds, those treated with the polylactic acid device consistently produced wound healing results superior to those of the untreated wounds.

The incidence of localized osteitis in control and experimental wounds bears a strong and inversely proportional relationship to the wound's capacity for remaining occluded with viable material.

SOMMAIRE

Dans cet article, il est question d'un pansement biodégradable en acide polylactique ayant la forme d'une éponge et doté de cellules ouvertes communiquant entre elles.

Ce pansement sert à recouvrir les blessures causées par les extractions dentaires. Comme il ne se déforme pas lorsqu'il est saturé de sang, il agit comme matrice pour le développement des tissus de granulation intra-osseux et sert de support pour la muqueuse alvéolaire privée de sa base d'os alvéolaire. Pour fins d'expérience, on a choisi 215 patients à qui on a dû extraire les troisièmes molaires de la mandibule en ayant recours pour les deux dents à des techniques chirurgicales identiques. Sur un côté, on a appliqué le pansement expérimental tandis que l'autre côté servait de témoin. De deux à cinq jours après les extractions, on a examiné tous les patients pour voir jusqu'à quel point les espaces laissés par les dents enlevées s'étaient refermés et jusqu'à quel point aussi la muqueuse et les tissus de granulation s'étaient développés. De sept à dix jours après les extractions, on a répété le même examen sur certains patients seulement. Dans la majorité des cas, le côté avec le pansement expérimental et le côté témoin guérissaient bien. Toutefois, le côté traité avec le pansement biodégradable présentait immanquablement des résultats supérieurs à ceux de l'autre côté.

L'incidence d'ostéite localisée sur l'un et l'autre côté était nettement et inversement proportionnelle à l'aptitude de la blessure à rester fermée avec un matériau viable.

Dental extraction procedures are commonly accompanied by iatrogenic loss of buccal or labial cortical bone. Such loss of bone always produces sharp, irregular bone edges which must be reduced by means of an alveoplasty if the patient is to be spared postoperative pain and mucosal ulcerations. These circumstances cause the patient additional inconvenience in the form of a more extensive procedure than originally

expected and greater risk of postoperative pain and swelling. Increased inconvenience to the surgeon in these circumstances can be measured in terms of greater expenditures of time to accomplish the alveoplasty and attend to postoperative care.

A biodegradable surgical dressing material has been developed for use in dental extraction wounds.^{1,2} Application of this material in wounds subjected to alveolar cortical bone loss eliminates objectionable bone promontories and obviates need for reduction alveoplasty. This dressing, formed from polylactic acid, was studied by Olson, et al.,¹ in comparison with gelatin foam (Gelfoam), and oxidized cellulose (Surgicel) in dog extraction wounds. The polylactic acid material (Drilac Cube) demonstrated excellent tissue tolerance with less inflammatory reaction than produced by Gelfoam and Surgicel. Although the inflammatory response to polylactic acid (PLA) material was minimal, it did elicit a mild foreign body reaction characterized by some multi-nucleated giant cells. Some polylactic acid material could be detected microscopically at the conclusion of the 90 day study. Nevertheless, wound healing processes were progressing normally and it was clear that biodegradation of the PLA would be complete. These results are consistent with those reported by numerous other investigators of polylactic acid.³⁻⁶

Brekke, et al.² have studied the polylactic acid mesh in human mandibular third molar extraction wounds. This investigation demonstrates the effectiveness of PLA cubes in reducing incidence of localized osteitis in the mandibular third molar extraction wound — from 16.23 per cent in control wounds to 3.51 per cent in the PLA-treated experimental wounds.

The purpose of this report is to describe

the capacity of polylactic acid surgical dressings to occlude dental extraction wounds, facilitate dental extraction wound healing and support alveolar mucosa with a structurally competent and biologically compatible, biodegradable material.

Materials and Methods

The polylactic acid surgical dressings used in this study are identical to those described in the aforementioned reports. They resemble a sponge and have interconnected, randomly positioned, shaped and sized voids extending throughout. Each void communicates with all others and with all points on the surface of the device. These sponge-like cubes maintain their structural integrity even when saturated with fluid blood. Whenever used, these implants were placed in the wounds immediately after tooth extraction was completed. The test dressings were supplied by Osmed Incorporated of Costa Mesa, California, under the trade name of Drilac Cube.

The mandibular third molar extraction

wound was chosen as the model for this study because it presents the most challenging circumstances for intrabony wound healing of any of the possible dental extraction wound settings. Mandibular third molar extraction wounds possess the poorest collateral circulation, the most dense cortical bone, and usually demand the greatest degree of surgical trauma to accomplish the required extraction. In addition, there is a larger area of cortical bone removed for retrieval of partial and complete bony impactions in this area than is usually the case when bone is lost with routine dental extractions. Proof of effectiveness for the PLA dressing in this surgical setting assures that the material will perform at least as well in any other dental extraction wound environment.

Selection of the 215 patients included in this study was based on their having bilaterally impacted mandibular third molars which were nearly identical radiographically, and of equal surgical difficulty. Patients were excluded from the study if

they had a positive medical history for any bleeding diatheses or use of any medications which affected normal clotting mechanisms; specifically aspirin and birth control pills.

Each patient served as his/her own control with the PLA material being applied to one of the mandibular surgery sites and the other being left to heal as usual and serve as the control wound. The PLA cubes were carefully alternated from side to side in succeeding patients (within each traditional category of third molar surgical difficulty) so as to account for surgeon preferences for operating on one side or the other.

Two experimental variables were simultaneously examined in this study: 1) the ability of PLA cubes to successfully occlude the intrabony void created by extraction of an impacted tooth and, 2) the ability of PLA cubes to support alveolar mucosa and developing granulation tissue overlying the intrabony extraction void.

The first PLA dressings to be clinically tested were sponge-like cubes composed of 4 per cent polylactate by volume. Although

TABLE I
Summary of data comparing bone void occlusion and mucosal/granulation tissue coverage of control and experimental wounds

214 patients of record for bone void occlusion study: 2-5 day period. 83 patients of record for bone void occlusion study: 7-10 day period.		2-5 Day Postoperative Examination	7-10 Day Postoperative Examination	Wound Failure Experience			
				Control Wd. 2-5	7-10	Exp. Wound 2-5	7-10
OCCLUSION OF VOIDS Effectiveness of PLA Cubes To Achieve Occlusion Of Dental Extraction Intrabony Voids	Experimental Wound Occlusion Is EQUAL TO Control Wound Occlusion	124 pt. of 214 total: 58% 82 pt. with 0% void and 90-100% mucosal coverage (unitemized). 42pt. bilaterally equal (itemized)	33 pt. of 83 total: 39.8% 19 of the 82 unitemized pt. returned 14 pt. bilaterally equal at less than 100% occlusion.	1	0	1	0
	Experimental Wound Occlusion Is SUPERIOR TO Control Wound Occlusion	74 patients showed Exp. Wound better occluded than Control Wd. 74pt. of 214 total: 35%	40 patients showed Exp. Wound better occluded than Control Wd. 40 pt. of 83 total: 48.2%	28	11	0	2
	Experimental Wound Occlusion Is INFERIOR TO Control Wound Occlusion	16 patients showed Control Wounds better occluded than Exp. Wounds 16 pt. of 214 total: 7.5%	10 patients showed Control Wounds better occluded than Exp. Wounds 10 pt. of 83 total: 12.0%	0	1	1	0
SUPPORT OF MUCOSA Effectiveness of PLA Cubes For Support of Free Mucosa Overlying Dental Extraction Bone Voids	Experimental Wound Mucosal Cover Is EQUAL TO Mucosal Coverage Of Control Wound	145 patients showed Experimental Wound mucosal coverage equal to that of the Control Wounds 145 pt. of 210 total: 69.0%	44 patients showed Experimental Wound mucosal coverage equal to that of the Control Wounds 44 pt. of 81 total: 54.3%	210 patients of record for mucosal support study: 2-5 day post op. period. 81 patients of record for mucosal support study: 7-10 day post op period.			
	Experimental Wound Mucosal Cover Is SUPERIOR TO Mucosal Coverage Of Control Wound	51 patients showed Experimental Wound mucosal coverage support better than Control Wd. mucosa 51 pt. out of 210 total: 24.3%	29 patients showed Experimental Wound mucosal coverage support better than Control Wd. mucosa 29 pt. out of 81 total: 35.8%				
	Experimental Wound Mucosal Cover is INFERIOR TO Mucosal Coverage Of Control Wound	14 patients showed Experimental Wound mucosal coverage support worse than Control Wd. mucosa 14 pt. out of 210 total: 6.7%	8 patients showed Experimental Wound mucosal coverage support worse than Control Wd. mucosa 8 pt. out of 81 total: 9.9%				

these dressings performed well in the wounds, they were fragile and difficult to handle surgically. Ninety-three of the 215 patients on the study were treated with 4 per cent PLA cubes. The remaining 122 patients were treated with cubes containing 6 per cent polylactate by volume. This concentration of polymer provided the dressings with much improved structural stability and allowed for greater ease of handling. The increase in polymer concentration from 4-6 per cent was the only change applied to the PLA cube implants during the course of the study. The only effect this change had on the dynamics of wound healing was to prolong, somewhat, final hydrolysis and biodegradation of the material. Pore size and architecture of the 4 per cent and 6 per cent cubes were identical.

All 215 patients were examined on the second to fifth postoperative day by the surgeon who performed the original surgery. Postoperative extraction wound occlusion was estimated as a percentage of the total intrabony wound volume present at surgery (prior to closure). Postoperative mucosal/granulation tissue coverage was estimated as a percentage of the wound surface area requiring closure. Those patients who were asymptomatic and who demonstrated, bilaterally, complete occlusion of the extraction void and 90-100 per cent coverage of the wound by supported mucosa and developing granulation tissue were discharged from care, with the option of a second examination at the 7-10th postoperative day. The second postoperative examination was required of all other patients, except when it was, in the surgeon's judgement, unnecessary. The incidence of localized osteitis was recorded for both control and experimental wounds at both examination periods.

RESULTS

Progress was not recorded for one patient at the 2-5 day examination but was recorded for this patient at the 7-10th day postoperative visit. There are, therefore, 214 patients of record for the 2-5 day postoperative examination period. These 214 patients produced the following distribution of mandibular third molar impaction types: 33.6 per cent soft tissue impactions, 36.0 per cent partial bony impactions and 30.4 per cent complete bony impactions.

Of the 215 patients included in this study, 82 demonstrated bilateral and complete occlusion of the extraction voids and 90-100 per cent bilateral mucosal/granulation tissue coverage of the wound when examined at the 2-5 day postoperative period. Most of this group were discharged from care at this time.

Those who returned for the 7-10 day post-

operative examination (19 patients of the original 82) demonstrated that they had maintained bilateral and complete bony void occlusion and 90-100 per cent mucosal/granulation coverage bilaterally. This group of 82 patients represents 38.1 per cent of the total clinical study population. An additional 42 patients presented at the 2-5 day examination with bilaterally equal bone void occlusion and mucosal coverage but at some level less than 100 per cent. Nevertheless, these patients were asymptomatic and required no postoperative care. For both parameters of the study, therefore, the majority of patients (124 total) produced equal and excellent wound healing results in both the control and experimental wounds. Occlusion of the intrabony void was equal in both control and experimental wounds in 58 per cent of patients at the 2-5 day postoperative period and in 39.8 per cent at the 7-10 day examination. Support of overlying mucosa/granulation tissue was equal in both control and experimental wounds in 69 per cent of patients at the 2-5 day examination and 54.3 per cent at the 7-10 day period.

Wounds treated with PLA cubes showed bone void occlusion superior to untreated control wounds in 35 per cent of patients at the 2-5 day period and 48.2 per cent of patients examined at the 7-10 day postoperative interval. The PLA cubes supported overlying mucosa more effectively than unassisted blood clots and granulation

tissue (control wounds) in 24.3 per cent of patients at the 2-5 day examination and in 35.8 per cent at the 7-10 day interval.

Untreated control wounds produced better bone void occlusion than wounds treated with PLA dressing in 7.5 per cent of cases at the 2-5 day period and in 12 per cent at the 7-10 day examination. Support of overlying mucosa was better for untreated wounds than PLA-dressed wounds in 6.7 per cent of cases at the 2-5 day interval and in 9.9 per cent at the 7-10 day examination.

The incidence of localized osteitis corresponds strongly to the ability of an extraction wound to remain occluded with healthy material. As long as the natural blood clot/granulation tissue mass remains healthy, an untreated extraction wound will heal as well as one treated with PLA cubes. When these natural materials fail, those wounds treated with PLA cubes out-perform the untreated wounds by a wide margin (20:1). It is interesting to note that the group of patients showing control wound occlusion superior to experimental wound occlusion experience bilaterally equal (and low level) wound failure rates (6.3 per cent for both experimental and control wounds).

All of the above results are summarized in Table I. Table II compares the effectiveness of 4 per cent PLA cubes with that of 6 per cent PLA cubes for the functions of intrabony void occlusion and support of mucosa. In both instances, the change from

TABLE II

Comparative effectiveness of 4.0% and 6.0% polylactic drilac cubes 2-5 Day Postoperative Examination

	OCCLUSION OF INTRABONY VOIDS	
	% Void Remaining Postoperatively 4.0% Drilac Cube	6.0% Drilac Cube
Control Wound > Experimental Wd.	38 of 75 patients 50.7%	36 of 57 patients 63.2%
Control Wound = Experimental Wd.	25 of 75 patients 33.3%	17 of 57 patients 29.8%
Control Wound < Experimental Wd.	12 of 75 patients 16.0%	4 of 57 patients 7.0%
	SUPPORT OF OVERLYING MUCOSA	
	% Mucosal Covering Postoperatively 4.0% Drilac Cube	6.0% Drilac Cube
Control Wound > Experimental Wd.	9 of 75 patients 12.0%	5 of 53 patients 9.4%
Control Wound = Experimental Wd.	39 of 75 patients 52.0%	24 of 53 patients 45.3%
Control Wound < Experimental Wd.	27 of 75 patients 36.0%	24 of 53 patients 45.3%

4 to 6 per cent polylactate produced an increase in the percentage of patients with experimental wounds performing better than control wounds. It should be noted that all experimental wound failures (localized osteitis) occurred in experimental wounds treated with 4 per cent polylactate cubes.

Conclusions and Discussion

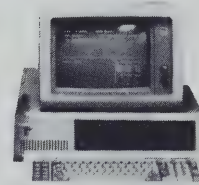
These data support the clinical observations that polylactic acid surgical dressings occlude dento-alveolar bone voids with a biologically acceptable material which provides a matrix for granulation tissue and new bone development. These findings are consistent with a previous radiographic observation showing that mandibular molar extraction wounds treated with polylactic acid cubes produce new bone at least as well as do identical untreated wounds in the same patient.²

Extraction sites treated with PLA cubes equalled the wound healing performance (wound occlusion) of untreated wounds in 58 per cent of patients studied and performed better than untreated wounds in this regard in 35 per cent of patients studied (2-5 day postoperative examination period). It is interesting to note that there is very little practical consequence resulting in the 7.5 per cent of patients showing control wound healing (occlusion) superior to that of PLA cube treated wounds. The incidence of localized osteitis is equal for both control and experimental wounds and is at a very low level in this group. The group of patients showing experimental wound occlusion superior to control wound occlusion also shows a preponderant incidence of localized osteitis developing on the control wound side (20:1 over the experimental side). It can be concluded from these data, therefore, that wounds treated with PLA cubes enjoy a significant wound healing advantage over untreated wounds, in terms of prevention of localized osteitis as well as in the ability to occlude intrabony voids with a biologically acceptable material.

PLA cubes support mucosa associated with dento-alveolar bone voids more consistently than the natural blood clot/granulation tissue apparatus alone. This means that a wound treated with PLA cubes has access to greater amounts of collateral circulation than an untreated wound and has a greater chance of developing that circulation for wound-healing purposes. In addition, the sharp edges of the bone void perimeter are eliminated when the cube structure is placed in juxtaposition with the bone perimeter of the mucosal surface of the wound. Effectively supported mucosa cannot be lacerated by underlying bone edges. PLA cube effectiveness was improved by increasing the concentration of polylactic acid from 4 per cent to 6 per cent by volume.

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A current practical application of these findings is in the field of preprosthetic surgery associated with insertion of immediate dentures. It is conceivable that restoration of alveolar bone voids with PLA cubes could provide sufficient mechanical support for alveolar mucosa to preserve preoperative alveolar ridge architecture despite iatrogenic or pathologic loss of alveolar cortical bone.

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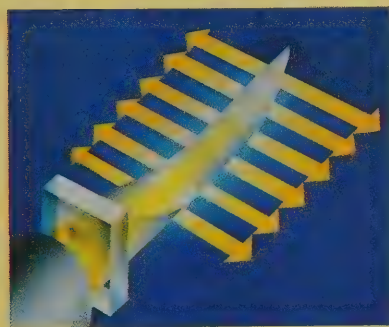
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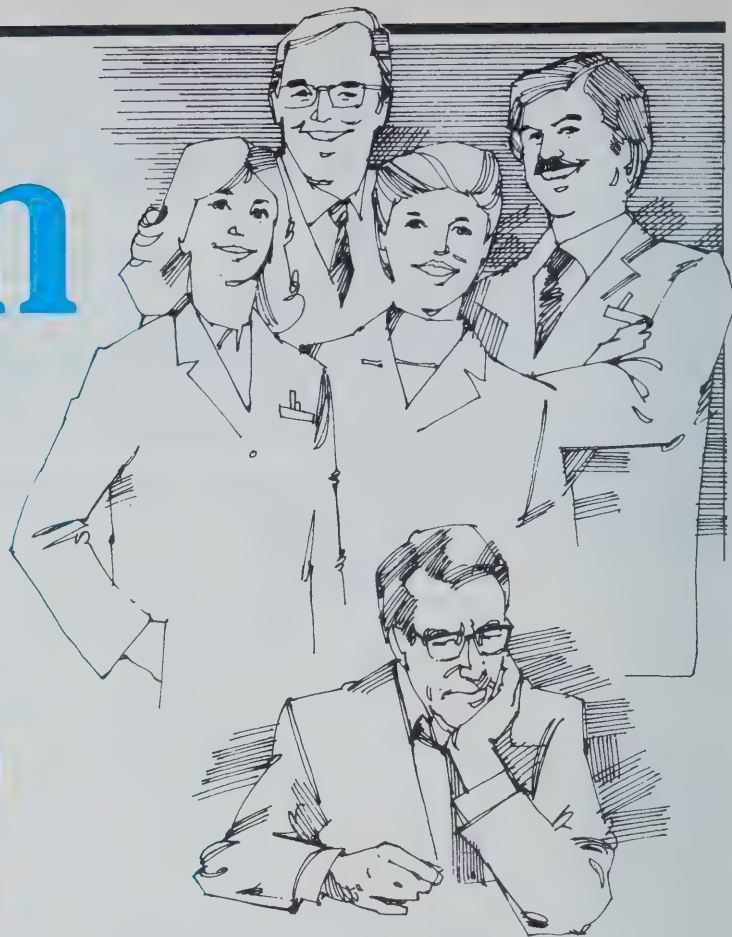
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PROSTHETIC TOOTH COMPOSITION

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ABSTRACT

Acrylic resin artificial teeth became available to dentistry some four and a half decades ago. Prior to that time, porcelain teeth were the customary substitute for missing natural teeth in both edentulous and partially dentate patients.

The current relative popularity of both types of teeth is reflected in the sales records of the largest artificial tooth manufacturer¹ which indicate that 65-70 per cent of the teeth presently sold are acrylic resin.

Because of the different physical properties of each of these two major artificial tooth substances, it is possible that both cannot offer a satisfactory solution to long-term problems associated with the wearing of complete dentures. In considering the choice of prosthetic tooth material, dentists should study all of the attributes of each material and reach a conclusion that derives more from prosthodontic reasoning than from factors unrelated to the iatrogenic potential of complete dentures. A dentist's preference for either tooth substances may have long-term significance for the patient with regard to the preservation of oral tissues. Neither the initial satisfaction of the dentist nor that of the patient should be allowed to overshadow the ominous possibility that prostheses can have a deleterious effect upon alveolar bone in the course of time.

AVANT-PROPOS

La médecine dentaire utilise des dents artificielles en résine acrylique depuis environ 45 ans. Auparavant, elle utilisait habituellement des dents en porcelaine pour remplacer les dents naturelles tant chez les personnes complètement édentées que chez celles qui n'en avaient perdu que quelques-unes.

Sur les ventes réalisées par le plus grand fabricant de dents artificielles, les dents en résine acrylique comptent pour 65 à 70 pour cent, ce qui témoigne de leur popularité auprès du public.

Parce que les dents en porcelaine et les dents en résine acrylique possèdent des propriétés physiques différentes, il se peut que ni les unes ni les autres ne constituent une solution satisfaisante aux problèmes qui, à long terme, se développent avec les prothèses complètes. En choisissant un matériau pour fabriquer des prothèses, le dentiste doit en étudier les propriétés et tirer une conclusion s'inspirant plus de considérations d'ordre prothétique que de facteurs ignorant les possibilités iatrogènes des prothèses complètes. La préférence qu'un dentiste aura pour la porcelaine ou la résine acrylique aura, à long terme, de l'importance pour le patient et la conservation de ses tissus buccaux. Ni la satisfaction initiale du dentiste ni celle de son patient ne doit les empêcher de voir que les prothèses pourront, avec le temps, avoir des conséquences nuisibles pour l'os alvéolaire.

Boucher² stated that "... clinical evidence of changes in soft tissues under dentures is readily available in the mouths of denture patients if one is willing to look for it and can recognize it". As for the endurance of the original prosthetic occlusion fabricated by the dentist, Boucher pointed out that after as short a period as two weeks in the mouth the occlusion was found to have changed when remounted on the same plaster mountings and articulator. When the occlusion changes, the transmission of occlusal forces must surely be beyond the control of the dentist.

Lytle³ describes the ability of the resilience in soft tissues under dentures to conceal gross occlusal discrepancies. Whereas minor periodic stressing of the tissues may have a salutary result, he indicates that excessive, prolonged displacement of soft tissue will ultimately affect the underlying bone unfavourably. Ortman⁴ clarifies, in general terms, the link between sustained abuse of alveolar mucosa and related bone resorption with reference to Wolff's Law of Transformation. Following tooth extraction, the mucous membrane and the periosteum cannot endure masticatory forces as when those forces were transmitted to the internal bone via natural teeth. Disuse atrophy results from the lack of normal stimuli. A change in bone stimulation from a normal mode to abnormal plus pressure from the denture base adversely affecting

vascular function in the periosteum both satisfy Wolff's Law in that "...change in form follows change in function. . .". The process involved however is more appropriately described as pressure atrophy rather than disuse atrophy.

There is no doubt that dentures can cause irreversible negative changes in the tissues that support them. Although varying systemic and prosthetic factors prevail to affect the rate and the extent of change, the main goal of this discussion will be to consider prosthetic tooth composition as it relates to occlusion and the distribution of occlusal forces to tissues underlying the denture base. Other properties of the tooth substances will be acknowledged in order to include as many factors as possible which appear to influence the dentist's choice. (Tables I and II). The results of a prosthetic tooth preference survey conducted among prosthodontic practitioners will also be presented.

Aesthetics

Both acrylic resin and porcelain teeth seem to satisfy the dentist's quest for convincingly natural yet attractive prostheses. Both types of teeth are available in a good variety of moulds and shades. There has been a tendency for porcelain shade guides to reflect the manufacturer's awareness of the grey ranges in tooth colour, whereas acrylic resin has tended to emphasize yellow. Few dentists would contest the fact that exist-

ing selections will satisfy the requirements of the majority of patients.

There is little difference in the aesthetic appeal of either type of teeth at the denture delivery stage. However, the changes which occur in acrylic resin teeth after a few years in the mouth can be quite significant. Whereas porcelain teeth possess a durable, glazed outer layer, traditional acrylic resin teeth are of a softer, uniform composition throughout. Porcelain teeth retain their glaze over a long period of time in the mouth but acrylic resin loses its polished finish, will abrade, and tends to discolour in the direction of a more yellow tone. The latter material also accumulates more extrinsic stain and calculus.

In considering aesthetic qualities alone, there appears to be little basis for disagreement with Mack⁶ who suggests that the greater durability of porcelain teeth makes them preferable to acrylic resin. Heartwell and Rahn⁷ also recommend porcelain teeth for their aesthetic superiority, despite their acknowledged brittleness.

Function

Because of their superior hardness, porcelain teeth are possibly more efficient in the trituration of food. The cusps, occlusal ridges and fossae of porcelain teeth abrade little as a result of prolonged function, therefore they retain their cutting and milling efficiency for a much longer period of time than do acrylic resin teeth.

Experienced dentists are familiar with the considerable wear which occurs on the occlusal surfaces of acrylic resin teeth after a few years of normal function. Even when new, they are considered to be less effective in cutting food than their porcelain analogues. Following a period of abrasion, their masticatory efficacy is further reduced due to the loss of morphologic detail from their occlusal surfaces. It is possible that the increased occlusal force necessary to cause plastic teeth to cut food efficiently may offset some of their advantages.

Laboratory Factors

Acrylic resin teeth are easier to manipulate than porcelain teeth, up to the point of processing a denture, but do not result in as "clean" a denture upon deflasking as when porcelain teeth are used. Wax residue left around the cervical margins of the waxed-up denture becomes replaced by a film of denture base which bonds chemically to the acrylic resin tooth surface. Acrylic resin denture base does not possess such a chemical affinity for porcelain, so that trimming cervical margins becomes easier.

During the polishing of a denture, porcelain teeth are relatively impervious to being abraded but care must be employed with acrylic resin teeth as they can be polished away along with the denture base. Porcelain teeth will readily chip on impact because of their greater brittleness. Acrylic resin teeth can be manipulated much more casually because of their resistance to fracture. This applies particularly to flasking and deflasking procedures.

During setting up and remount procedures, grinding and polishing acrylic resin teeth is much easier than with porcelain teeth. Although porcelain polishes are available, the original glaze can be restored to porcelain only by re-firing in a porcelain furnace.

Difficulty in adapting porcelain teeth to partial dentures and to limited vertical spaces in complete denture cases is as much a laboratory problem as it is a clinical one.

Preventive Considerations

Application of the term "preventive" to prosthodontics is entirely appropriate. Stephens⁸ stresses that prosthetic rehabilitation is the final phase in a patient's lifelong dental experience and must not fail in the manner that prevention, conservation and periodontal therapy have failed for the edentulous patient. The condition of edentulism is final and unique in that there is no alternative, progression or retreat from it. Stephens' philosophy is summarized in the reminder that we must prevent those incurable prosthetically induced conditions which preclude success with dentures.

TABLE I

Properties of an ideal artificial tooth substance as compared to acrylic resin and porcelain

Ideal Tooth Substance	Acrylic Resin	Porcelain
1. Non-toxic	Yes	Yes
2. Non-allergenic	*No	Yes
3. Low coefficient of friction	Yes	No
4. Wear resistant	No	Yes
5. Readily ground and re-polished	Yes	No
6. Bonds well to denture base	Yes	Yes
7. Acceptable sound level in forceful contact	Yes	No
8. Resistant to chipping and tooth fracture	Yes	No
9. Minimal discoloration with time	No	Yes
10. Easy tooth-replacement repairability	Yes	Yes
11. Available in various moulds and shades	Yes	Yes
12. Endures re-processing in relining etc.	Yes	Yes
13. Acceptable cost	Yes	Yes
14. Natural appearance	Yes	Yes
15. Suitable for acid-etch bridges	Yes	No
16. Dimensional stability after processing	Yes	Yes
17. Suitable for all partial denture situations	Yes	No
18. Compatible with opposing natural teeth	Yes	No
19. Ease of manufacture	Yes	No

*According to Devlin and Watts,⁵ acrylic resin allergy is a misnomer. It is likely that haptens such as formaldehyde, benzoyl peroxide, residual methyl methacrylate and plasticizers like dibutyl phthalate, present in fully processed polymethylmethacrylate, elicit an adverse tissue response. The fact remains however that processed acrylic resin, regardless of which constituent is responsible, may stimulate an allergic reaction in oral tissues.

The enigma associated with the choice of prosthetic tooth substances relates significantly to the distribution of occlusal forces to the supporting mucosa and bone. For example, there must be considerable difference with regard to the amount and direction of forces resulting from an acrylic resin monoplanar occlusion and a porcelain 20° occlusion. The former is relatively free of deflective contacts which would direct forces other than in a vertical direction, whereas the porcelain configuration, even if perfectly balanced initially, will settle out of occlusion and may induce unfavourable aberrant occlusal contacts. The tissues will have to adjust to such a traumatic occlusion because porcelain cannot self-adjust through abrasion as can acrylic resin. Instead of following the principle that dentures must be made to accurately fit the mouth, the mouth must undergo a traumatic adaptation to the dentures. (Fig. 1). Jones⁹ indicates that ridge resorption is inevitable whether dentures are worn or not. However, he refers to the ability of a cuspless occlusion to accommodate to slight changes in jaw relationship without the hazards of cusp interferences. If the posterior teeth are made of an abradable material, Jones claims that deflective occlusal interferences will be worn away in the course of normal function. All of this makes sense in light of Boucher's² observation regarding the rapidity with which prosthetic occlusion changes in the mouth and should focus our attention on the fact that acrylic resin teeth will abrade and porcelain will not.

Sheppard et al¹⁰ also stress the difficulty of maintaining definitive intercuspation over a period of time because of the changes which occur in the supporting structures. Tallgren's¹¹ studies have shown that as much as 1 mm of alveolar resorption per year can occur in the mandible with an additional but lesser amount occurring in the maxillae. The resorption rate in the mandible, especially in the anterior, can be as high as four times that of the maxilla for a given individual. It is very difficult to comprehend that a totally unyielding tooth material can serve the patient's needs under such conditions without contributing to the destructive cycle.

The frictional resistance of one occlusal surface moving against another will affect the amount of non-vertical stresses to which the alveolar ridges are exposed. An *in vitro* study by Koran¹² et al considered various combinations of porcelain and acrylic resin teeth with regard to their coefficients of friction. Their results disprove any assumption that porcelain teeth result in less friction at the occlusal interface in a wet environment. Their conclusion was that "in a wet

environment acrylic resin sliding against acrylic resin gave lower friction coefficients than porcelain sliding against porcelain".

Acrylic resin cusp teeth will obviously lose their cusps through attrition and this suggests a loss of masticatory efficiency. According to Moses,¹³ the absence of cusps from both natural and prosthetic teeth is more compatible with human physiologic needs than their presence. Like Sheppard,¹⁰ he abhorred the effect of mal-related cusps upon the supporting tissues. Nasr et al,¹⁴ who studied the relative masticatory efficiency of 30°, 20° and 0° teeth, found that there was little difference in the efficacy of the different tooth forms nor was there any significant difference between acrylic resin and porcelain teeth. If the wear process involving acrylic resin teeth should result in a beneficial form of patient-generated occlusal path, then perhaps this could be considered an asset rather than a deficiency.

Meyer¹⁵ accepts the fact that occlusal paths developed in the mouth are in harmony with condylar paths and the neuromuscular system. Although advocating a "reverse curve" type of generated path, Shanahan¹⁶ acknowledges the ability of complete denture patients to develop an individualized compensating curve. He contends that, as in the natural dentition, "changes of occlusal curvature may occur in complete dentures with plastic teeth after several years of wear. In both instances the supporting tissues generally remain healthy because the necessary adjustments take place on the occlusal surfaces." It has not yet been proven that acrylic resin teeth wear "into" occlusion or "out of" occlusion as a result of the wear process. It is probable that early in the wearing-in process an acceptable occlusion develops which deteriorates as further wear occurs. Plastic teeth necessitate monitoring the patient fairly frequently for reduction of the vertical dimen-

sion of occlusion and the development of other unfavourable occlusal relationships.

It has been difficult to determine what the clinical indications really are for the use of porcelain teeth in complete dentures. The results of a prosthetic tooth preference survey of prosthodontic practitioners (presented later in this article) revealed that superior aesthetics and their wear-resistant ability to maintain the original occlusion established by the dentist to be the most consistent reasons. If the sequelae which appear to occur following denture insertion are widespread in the complete denture population, then these reasons are invalid and should be rejected. Aesthetic superiority is of little consequence because patients very rarely complain about the appearance of present day acrylic resin teeth. Furthermore, if porcelain teeth do maintain the integrity of the original occlusion, they may do so at the expense of the supporting alveolar ridges. The mouth is obviously being forced to conform to the uncompromising mechanics of a rigid, dentist-imposed occlusion. The use of porcelain teeth for such non-preventive reasons suggests that the dentist is imposing his own preference upon an unsuspecting patient. Meticulously balanced prosthetic occlusions, even when they appear to function in the mouth as they do on the articulator, are meaningless, or even traumatic, if they do not conform to the physiological needs of the patient. Many mathematically derived principles of occlusion do not acknowledge the degree of variation within the human race. It may be time to cease insisting that patients conform to the dictates of the articulator. Mathematical or engineering principles are best applied to mechanical systems. Such systems are not subject to a biological response — physiological entities such as the human stomatognathic system are.

The responsibility of the dentist is summarized by Wendt¹⁷ as follows: "The

TABLE II

A subjective clinical comparison of acrylic resin and porcelain prosthetic teeth

	Acrylic	Porcelain
1. "Self-adjusting" wear capability to counteract changes in fit and occlusion of dentures	Yes	No
2. Easily equilibrated and re-polished following occlusal changes due to processing (remount procedures)	Yes	No
3. Readily customized and repolished during laboratory set-up for try-in	Yes	No
4. Suitable for placing in opposition to amalgam, gold or resin restorations in natural teeth, or unrestored natural teeth.	Yes	No
5. Original polish easily restored following minor chairside equilibration with dentures in situ	Yes	No
6. Efficient in "cutting" food with minimized muscular effort	No	Yes
7. Adaptable for partial dentures and minimal inter-ridge spaces	Yes	No

objective of removable prosthodontics is to make a prosthesis accurately that fulfills the anatomic and physiologic requirements of the patient while maintaining the components of the stomatognathic system in good health."

New Tooth Materials

In recent years, prosthetic teeth of new materials have become available. They purport to be more wear-resistant than conventional acrylic resin but not as hard as porcelain.

A study of one such product (Trubyte Bioform I.P.N. teeth¹) by Ogle¹⁸ et al, conducted to assess their wear characteristics relative to conventional acrylic resin teeth, showed 28 per cent less wear on the new teeth over a 36-month period. These teeth consist of an unfilled highly cross-linked interpenetrating polymer network.

Although these products offer a third option to the dentist, it is difficult to predict their status relative to tissue conservation because the optimal hardness for prosthetic teeth has not yet been defined. Until that issue is resolved, it appears that the more submissive a material is to the attrition process exerted by the jaws, the greater will be its conservancy value, even though increased denture maintenance will need to be carried out.

Prosthetic Tooth Preference Survey

Members of two Canadian Prosthodontic Organizations were surveyed to determine

the prevailing preference with regard to porcelain or acrylic resin denture teeth. The Canadian Academy of Prosthodontics consists of specialist and non-specialist members while the Association of Canadian Prosthodontists is a specialist group. A total of 183 questionnaires were mailed out along with stamped, addressed return envelopes. Members were queried about their choice of teeth and invited to comment upon the reasoning on which their preference is founded.

The 121 replies were sorted into six categories:

1. Those not treating removable prosthodontic cases.
2. Those using porcelain and plastic teeth in equal quantities.
3. Those preferring plastic teeth.
4. Those preferring porcelain teeth.
5. Those using combination plastic-porcelain sets.
6. Those using the new IPN or Orthosit teeth.

Table III shows a numerical breakdown of the responses and also gives the results as a percentage of the number of prosthodontic practitioners polled and as a percentage of the number who responded.

In Table III the total of all categories exceeds 121 because a few respondents fitted more than one category. For example, they might be using combination sets of teeth in practice but to the question "Do you prefer plastic or porcelain?" they indicated a distinct preference for one or the other. The main goal of the exercise was to

determine the relative acceptability of both materials to prosthodontic practitioners.

Not all respondents availed themselves of the opportunity to comment upon their choice of teeth. A few commented at length however, and submitted some interesting comparative lists of properties of the two materials.

The respondents' comments were recorded and classified into four categories:

1. Positive comments concerning porcelain teeth.
2. Negative comments concerning porcelain teeth.
3. Positive comments concerning acrylic resin teeth.
4. Negative comments concerning acrylic resin teeth.

Each statement which reflected an awareness of preventive considerations was labelled with an asterisk. The collective situation regarding the incidence of preventive statements appears in Table IV. It should be noted that both positive and negative comments concerning a tooth material can reflect an awareness of this issue. The numbers in brackets represent the number of preventive comments for that group of respondents.

The majority of respondents preferred plastic (acrylic resin) teeth. The greatest awareness of preventive considerations was shown by Group 3, the pro-plastic group, although in proportion to the large size of that group the total number of comments does not seem particularly great. However, the pro-plastic group collectively did offer a more meaningful explanation for their choice of tooth substance in terms of the consequences intra-orally.

Four respondents in Group 5 use combination sets of teeth, possibly in the manner proposed by Sears¹⁹ and Myerson.²⁰ Sears advocated porcelain maxillary posteriors in conjunction with acrylic resin in all other segments of the occlusion. With that combination, little serious abrasion was detected three years after denture insertion. Harrison's²¹ findings tend to contradict those of Myerson in that he observed greater total wear in acrylic resin teeth opposing porcelain than in an all acrylic resin arrangement. It has been observed that over a longer period of time the harsh porcelain cuts a significant swath through the opposing plastic, resulting in a totally bizarre occlusion. This would certainly happen if the original porcelain had lost its glaze as would occur in the presence of a particularly abrasive diet. The occlusal surfaces need to be of the same material in order to be reciprocally abradable if there is to be any possibility of developing an appropriate functionally-developed compensating curve.

TABLE III

Responses of Surveyed Prosthodontic Practitioners to the Tooth Preference Questionnaire

	Number Polled	Number of Replies	Group 1 Number Involved in Removable Prosthodontics	Group 2 Number Using Porcelain and Plastic in Equal Quantities	Group 3 Number Who Prefer Plastic Teeth	Group 4 Number Who Prefer Porcelain Teeth	Group 5 Number Who Use Combination Sets of Plastic & Porcelain	Group 6 Number Using IPN [†] or Orthosit [*] Teeth
	183	123	9	8	81	22	4	12
As a percentage of the number polled	100%	66.66%	4.9%	4.37%	43.7%	12.0%	2.18%	6.55%
As a percentage of the number who replied	—	100%	7.37%	6.55%	65.57%	18.03%	3.27%	9.83%

† IPN — Dentsply International Inc., York, Penn., U.S.A.
 * Orthosit — Ivoclar, Mississauga, Ontario.

The prosthetic departments of the 10 Canadian dental schools were also surveyed regarding the type of teeth used in their undergraduate dental programs. Only four replies were received, so no meaningful consensus could be determined.

In a 1985 survey of the curricula of 60 dental schools in the United States, Jagers et al²² found that porcelain and plastic teeth are used in equal quantities i.e. an equal number of schools favoured each exclusively.

Summary

The merits of acrylic resin and porcelain teeth have been discussed with reference to the advantages and disadvantages of each material. The results of a survey of Canadian prosthodontic practitioners were also presented in order to determine the preferences of a group of practitioners intimately involved in the tooth selection process.

The discussion has emphasized preventive factors throughout because it has been well established that dentures can have a distinctly harmful effect upon the human mouth, and every possible measure must be utilized to avoid such iatrogenic degeneration. Efforts to that end should include a careful consideration of the type of tooth substance that we select for patients.

Conclusion

When one concentrates attention on a single issue which is only one constituent of a much more complex problem, it is possible to be guilty of over-simplification.

In dealing with tooth composition alone one must retain an appropriate awareness of all the other factors which interact to affect the total well-being of the patient who wears complete dentures. Age, sex, state of nutrition, and the state of the patient's physical and psychological health all contribute to the patient's acceptance of dentures. In addition, many prosthetic factors directly under the control of the dentist also subscribe to either success or failure in the patient's denture experience. Apart from tooth selection, unless proper impressions, accurate jaw relations and a generally acceptable overall denture design exist, the patient will not receive dentures which were conceived with a determined awareness of tissue conservation.

Because of the vast number of variables which must be considered in objectively assessing the cause of alveolar ridge resorption, it may be some time before an ideal experimental model is established to isolate the causes from each other so as to control them. One cannot expose patients to possible ridge destruction in order to identify the most acceptable tooth substance. It is unlikely that an abundance of edentulous

identical twins will become available in the near future to help us resolve these matters.

Despite the fact that no conclusive solution to the porcelain versus acrylic resin tooth controversy exists at present, dentists would do well to opt for the choice which promises the greatest preventive potential. Armed with the knowledge that dentures can destroy alveolar bone, and being aware of the entirely different behaviour of the two substances under functional conditions, it seems that most dentists prefer to use acrylic resin teeth.¹ Their deficiencies only create problems which are surmountable. Furthermore, of the two materials acrylic resin is the only one for which it appears possible to visualize any kind of preventive scenario. With regard to its abrasability – prosthetic tooth material is dispensable, alveolar bone is not.

Acknowledgements

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Note

Opinions expressed in this article are those of the author and do not represent the views of any Division or Department in The University of Western Ontario or of any other organization.

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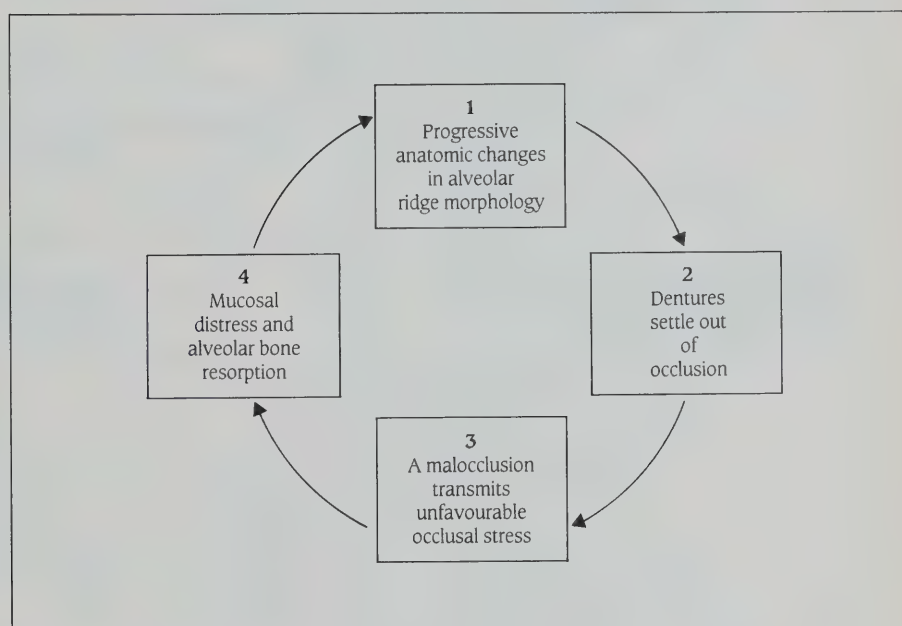


Fig. 1. The destructive prosthetic cycle.

TABLE IV

Analysis of the respondents comments

	Comments Concerning Porcelain Teeth	Comments Concerning Acrylic Resin Teeth
Group 2 – Using porcelain and acrylic resin in equal quantities	Positive – 3 (1) Negative – 0	Positive – 4 (3) Negative – 0
Group 3 – The pro-acrylic resin group	Positive – 13 (9) Negative – 14 (11)	Positive – 58 (35) Negative – 1 (0)
Group 4 – The pro-porcelain group	Positive – 10 (2) Negative – 9 (3)	Positive – 11 (5) Negative – 7 (3)
Group 6 – Those using I.P.N. or Orthosit teeth	Positive – 0 Negative – 1 (1)	Positive – 4 (3) Negative – 0

The bracketed numbers indicate the incidence of preventive comments for that group of respondents.

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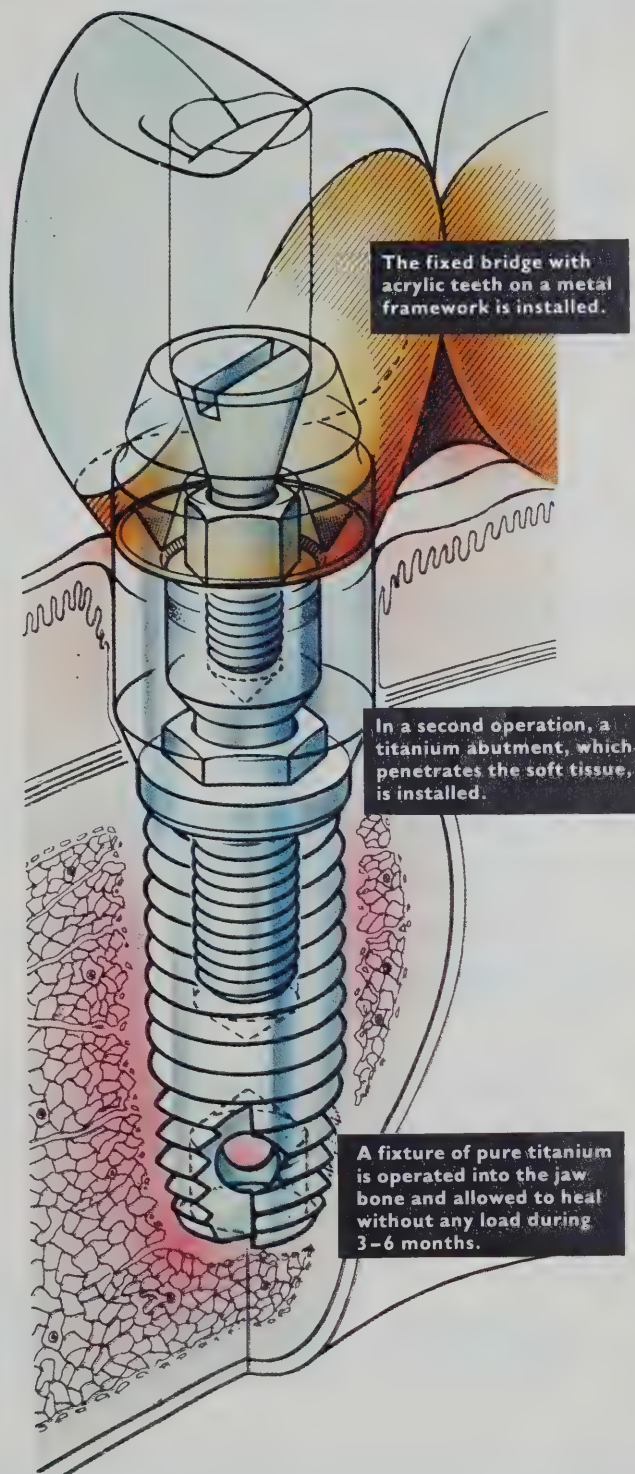
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July 30-August 2: Alberta Dental Association Convention, Grand Centre, Cold Lake Area. Contact: Dr. B.G. Kleeberger, Chairman, P.O. Box 674, Elk Point, Alberta T0A 1A0, 403-724-4086.

AUGUST/AOÛT 1986

August 3-9: Puppeteers of America 47th Annual Festival, UBC, Vancouver, British Columbia. Contact: Luman Coad, 1384 Hope Road, North Vancouver, B.C. V7P 1W7.

August 4-5: National conference on the woman dentist, ADA headquarters, Chicago, Illinois. Contact: The Bureau of Dental Society Services, ADA, 211 East Chicago Ave., Chicago, Ill., 60611, 312-440-2600.

August 15: Expo '86 Dental Seminar, "The Planning is Strategic" by Dr. Burton Press. Sponsored by the College of Dental Surgeons of British Columbia. Contact: College of Dental Surgeons of British Columbia, 1125 West 8th Ave., Vancouver, B.C. V6H 3N4.

August 17-19: Canadian Academy of Restorative Dentistry annual meeting, Sheraton Hotel, Halifax, Nova Scotia. Top scientific and social program. Contact: Dr. John Merritt, Registration Secretary, 1969 Connaught Ave., Halifax, N.S. B3H 4E2.

August 17-19: The Canadian Academy of Restorative Dentistry 23rd scientific session, The Sheraton Hotel, Halifax, N.S. Contact: Dr. V.B. Shaffner, Scientific Chair-

man, 5991 Spring Garden Rd. Suite 580, Halifax, N.S. B3H 1Y6, 902-429-2333.

August 18-21: Canadian Academy of Pediatric Dentistry presents the 7th Canadian Congress on Dentistry for Children, University of British Columbia, Vancouver, B.C. Contact: Dr. R.E. Patton, Suite 801, 925 W. Georgia St., Vancouver, B.C. V6C 1R5 (604) 685-5620.

August 19-20: Canadian Academy of Pediatric Dentistry annual meeting, University of British Columbia, Gage Towers, Vancouver, British Columbia. Contact and register with: Dr. W.S. Cheung, Suite 103, 3020 Lincoln Avenue, Coquitlam, B.C. V3B 6B4. (604) 484-3213.

August 22, 23, and 24: Dr. Waldemar Brehm, Advanced Mechanics. Sponsored by the International Dental Institute (I.D.I.) Inc. Course location Montreal, call Diane Baillargeon at (514) 463-1281 for details.

August 23: Academy of Dentistry International, Convocation and Annual Meeting. Sheraton Centre, Halifax, N.S. Contact: Dr. Donald Williams, 160 Highfield St., Moncton, N.B. E1C 5M6.

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 25-29, 1986: Biennial Conference of the New Zealand Dental Association, Wellington, New Zealand. Contact: Conference Secretary, New Zealand Dental Association, P.O. Box 3709, Wellington, New Zealand.

SEPTEMBER/SEPTEMBRE

September 14-16: Clinical Geriatric Dentistry Symposium, co-sponsored by the American Dental Association, the Veterans Administration and the American Society for Geriatric Dentistry. Chicago, ADA Headquarters. Contact: Dr. J.M. Doherty, Den-

tal Service, (160) VA West Side Medical Centre, P.O. Box 8195 Chicago, Ill. 60680, USA.

September 15-19: Annual Conference of the Canadian Society of Forensic Science, Sheraton Brock Hotel, Niagara Falls, Ontario. Contact: Executive Secretary, Canadian Society of Forensic Science, 2660 Southvale Crescent, Suite 215, Ottawa, Ontario, K1B 4W5, 613-731-2096.

September 15-December 11: UCLA Extension Dental Refresher Program, UCLA Extension Downtown Centre, Los Angeles, California. Program designed to improve knowledge of non-US trained dentists. Contact: Continuing Education in Health Sciences, UCLA Extension, 10995 Le Conte Avenue, Room 614, Los Angeles, 90024, 213-825-9187.

September 18-20: The Ninth Annual Greater Niagara Frontier Dental Meeting. Buffalo Convention Centre, Buffalo, New York. Contact: Pauline Bress, Director, Continuing Dental Education, 167 Farber Hall, Buffalo, N.Y. 14214, 716-831-2320.

September 20-21: Canadian Craniofacial Society symposium and annual general meeting. Toronto Hospital for Sick Children, Toronto, Ontario. Contact: Dr. Gordon Wilkes, 1004-10045 - 111 St. Edmonton, Alta, T5K 2M5.

September 20-25: Canadian Paediatric Society 63rd annual meeting, Hilton Harbour Castle, Toronto, Ontario. Contact: Canadian Paediatric Society Secretariat, Children's Hospital of Eastern Ontario, 401 Smyth Rd. Ottawa, Ont. K1H 8L1, 613-737-2728.

September 21: Canadian Hypertension Society is sponsoring a forum on "Community Approaches to High Blood Pressure Prevention and Control", 1-5 pm, Toronto, Ontario. Contact: Community Approaches to High Blood Pressure Prevention and Control, c/o Dr. Karen Mann, Hypertension Unit, Camp Hill Hospital, 1763 Robie Street, Halifax, N.S. B3H 3G2.

September 24-27: Annual Meeting of the American Academy of Periodontology, Cleveland Convention Centre, Cleveland, Ohio. Featured speaker is Dr. Per-Ingvar Branemark. Contact: Jean Pierson, The American Academy of Periodontology, Room 924, 211 E. Chicago Ave., Chicago, Ill. 60611-2690, 312-787-5518.

September 24-29: Canadian Academy of Endodontics Annual Meeting, Four Seasons Hotel, Vancouver, B.C. Contact: Dr. S.K. Sinanan, 925 West Georgia St. Suite 1015, Vancouver, B.C. V6C 1R5.

September 26-28: 3rd Samuel Seltzer Endodontic Symposium "Endodontic Flare-ups" Hershey Hotel, Broad and Locust Streets, Philadelphia, Pennsylvania. Contact: Dept. of Endodontology, Temple University School of Dentistry, 3223 North Broad St., Philadelphia, PA, 19140, 215-221-2810.

OCTOBER/OCTOBRE

October 18-23: American Dental Association, 127th Annual Session, Miami Beach Convention Centre and Fontainebleau Hilton Hotel. Contact: American Dental Association, 211 E. Chicago Ave., Chicago, Ill. 60611, 312-440-2726.

October 31-November 1: Professional Development Committee of the Ontario Dental Association and the Ontario Society of Endodontists present the Symposium on Clinical Endodontics. Featured speakers include Drs. H. Trowbridge, D. Aren, R. Burns, S. Cohen, J. Namias, W. Cunningham, J. Schoeffel, A. Machanowicz, M. Fagin and R. Greenfield. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ont. M5R 2P1 416-922-3900.

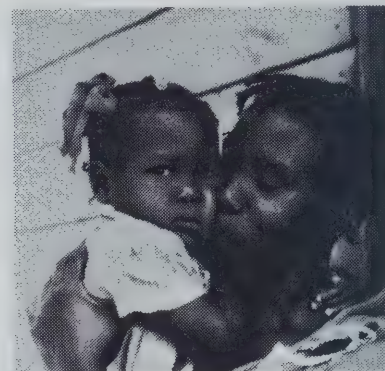
NOVEMBER/NOVEMBRE

November 17-21: Second International Congress on Gerodontology, Stamford-Westin Plaza Hotel, Raffles City, Singapore. Hosted by the Singapore Dental Association. Contact: Organizing Secretary, 2nd International Congress of Gerodontology, Singapore Dental Association, Medical Alumni, 4A College Rd. Singapore 0316, Republic of Singapore.

November 25-28: 6th Annual Sports Medicine Seminar "Sports Medicine for All Practitioners", Intercontinental Hotel, Maui, Hawaii. Contact: Dr. Stuart Zeman, Course Chairman, 2999 Regent St., Suite 203, Berkeley, California, 94705, 415-540-8686.

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In order to take advantage of these special rates, it will be necessary to identify yourself as a CDA member when making your reservations. Reservations can be made by calling the individual hotels directly, or by telephoning toll free in Canada and the U.S. - 800-268-6282 and in Toronto 445-5031. If making guaranteed reservations, members are requested to use their businesses or credit cards and not the name of the Association.

Following are the National Corporate Rates available. Please note the following rates are subject to availability and may change without notice. All rates are quoted in Canadian dollars.

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Four Seasons — Ottawa

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Four Seasons — Toronto

Corporate Rate

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\$185.00 SGL/DBL (FSR)*

Inn on the Park — Toronto

Corporate Rate

\$105.00 SGL/DBL (To August 31/86)

\$115.00 SGL/DBL (To Dec. 31/86)

Four Seasons — Vancouver

Corporate Rate

\$145.00 SGL/DBL (To Oct. 14/86)

\$165.00 SGL/DBL (FSR)* (To Oct. 14/86)

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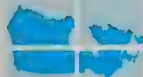
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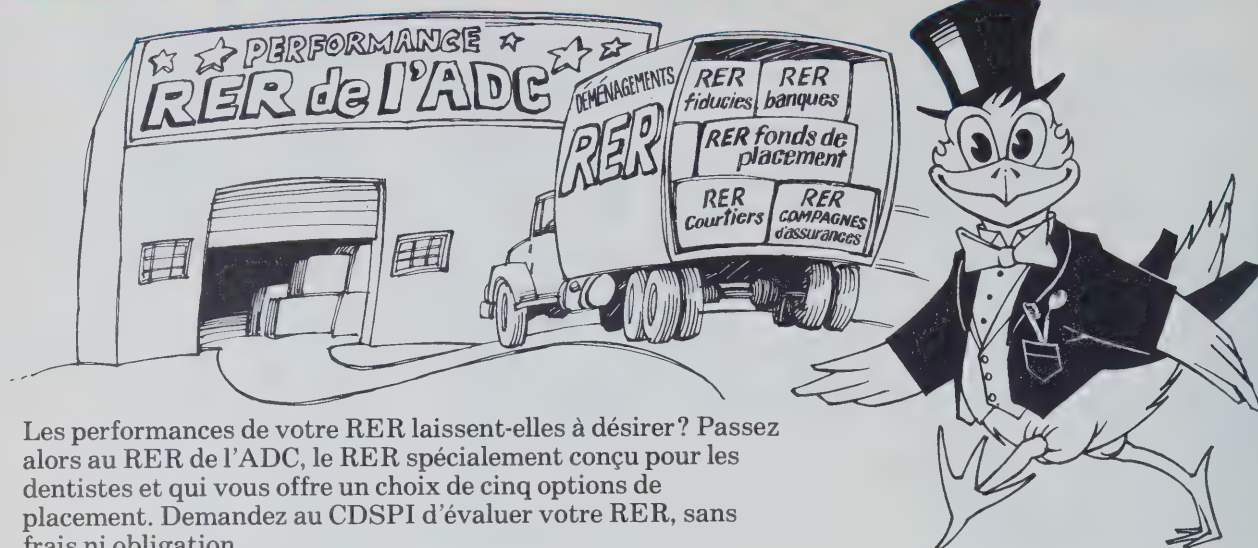
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La chaîne des hôtels Quatre Saisons du Canada a accepté de maintenir en vigueur jusqu'au 31 décembre 1986 ses tarifs des corporations pour les membres de l'Association dentaire canadienne.

Pour profiter de ces tarifs spéciaux, vous devez déclarer que vous êtes membre de l'ADC au moment de faire vos réservations. Pour réserver, il suffit de téléphoner à l'hôtel de votre choix en composant 445-5031 si vous êtes à Toronto, ou 800-268-6282 ailleurs au Canada et aux États-Unis. Pour garantir vos réservations, on vous prie d'utiliser vos cartes de crédit ou d'affaires et non le nom de l'Association.

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Tarif spécial pour l'ADC

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Quatre Saisons — Toronto

Tarif des corporations

157\$ S/D

185\$ S/D (CQS)*

Inn on the Park — Toronto

Tarif des corporations

105\$ S/D (jusqu'au 31 août 1986)

115\$ S/D (jusqu'au 31 décembre 1986)

Quatre Saisons — Vancouver

Tarif des corporations

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165\$ S/D (CQS) (jusqu'au 14 octobre 1986)

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BRITISH COLUMBIA—Central interior B.C.—A busy, well established family practice for sale in the heart of the Cariboo.

Located in a group practice within a modern medical/dental building adjacent to the hospital. There are three well equipped operatories with two more available, in this professionally designed dental complex. Excellent staff including hygienist. High gross and net figures. Good recreational area—sailing, skiing, hunting, fishing etc. One hour to Vancouver by daily jet service. Would suit experienced practitioner or two young motivated dentists. Owner returning to graduate school. Call Dr. Paul Pocock 604-992-3771 or 604-269-5374.

BRITISH COLUMBIA—Central—for sale well established family practice in group building. Excellent gross. Trained staff. Dentist going overseas. Call 604-398-8265 evenings.

BRITISH COLUMBIA—North Vancouver—Excellent location in prosperous Capilano Highlands for sale. Retiring. Two chair solo practice, approximately 700 square feet, in attractive medical-dental building located in main shopping area. Contact: Dr. John Power, 604-987-5323 (days); 604-922-1109 (evenings).

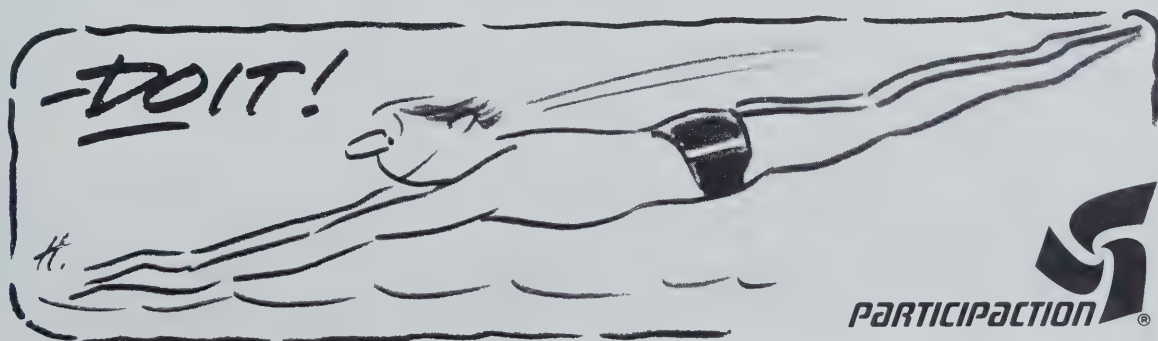
BRITISH COLUMBIA—South Vancouver—900 Sq. ft. space available immediately. For \$7000 you can assume leased premises and leasehold improvements (replacement cost over \$30,000). Some dental equipment and furniture included. Six medical practitioners on same floor. Present 2 dentists moving to larger premises. Call (604) 261-3366 or 266-9888 evenings.

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ONTARIO—Ottawa — Alta Vista Bungalow zoned for dental office. Opportunity for dentist with established practice to buy building. Full bathroom. Kitchen with refrigerator and stove. Now used as orthodontic office. Compressor — Plumbing — full basement. Owner retiring. 1280 Kilborn. (613) 733-5130 office, (613) 722-4522 residence \$150,000.00. Good investment.

ONTARIO—Windsor — ENDODONTIST REQUIRED Full Time Associate required for busy endodontic practice in southwestern Ontario city. Position will lead to partnership in 1 year if desired. Apply to CDA Box number 2326.

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NORTHWEST TERRITORIES—Yellowknife. Associate required in a general dental practice, with a definite view to early succession. Familiarity with fixed and functional orthodontics and T.M.J. essential. Reply to CDA Box No. 2322.

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In response to a submission made by the Canadian Dental Association, Revenue Canada is reviewing the application of Personal Services Business (PSB) Definition to Professional Management Companies (PMCs).

If your PMC is experiencing a Revenue Canada audit and the Personal Services Business Definition is being applied to your PMC, please contact Dr. Robert Hicks, Chairman — CDA Taxation Committee at (604) 922-0111 for additional important information.

A letter dated June, 1986 from Dr. Hicks has been forwarded to all CDA members providing them with further details.

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McGill University
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Montreal, Quebec H3A 2T5

JOURNAL OF THE CANADIAN DENTAL ASSOCIATION JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

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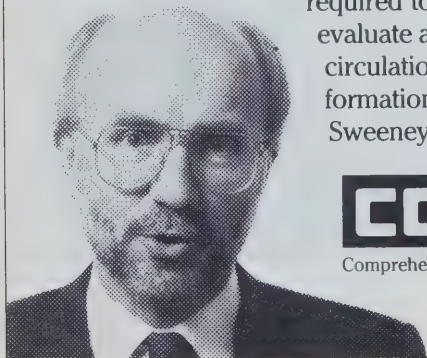
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Major Reports:

are longer contributions dealing with diagnosis and treatment of dental disease, studies in education, clinical and laboratory research and other detailed investigations pertinent to dentistry and related fields.

Clinical Reports:

are brief (up to 1,500 words) reports, case histories and clinical observations. References should be limited and a minimum number of illustrations used.

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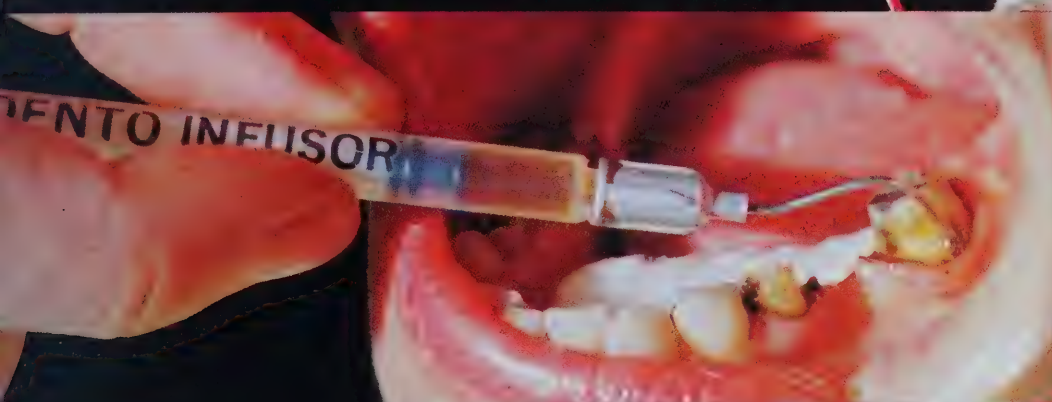
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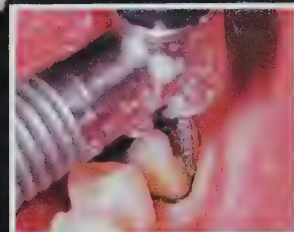
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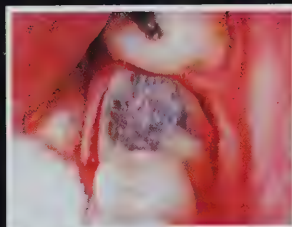
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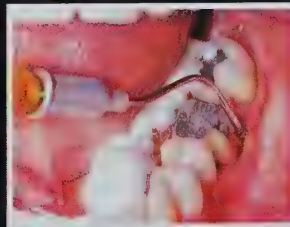
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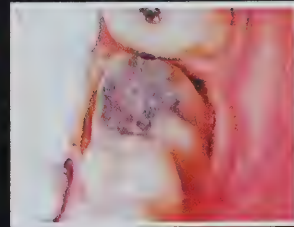
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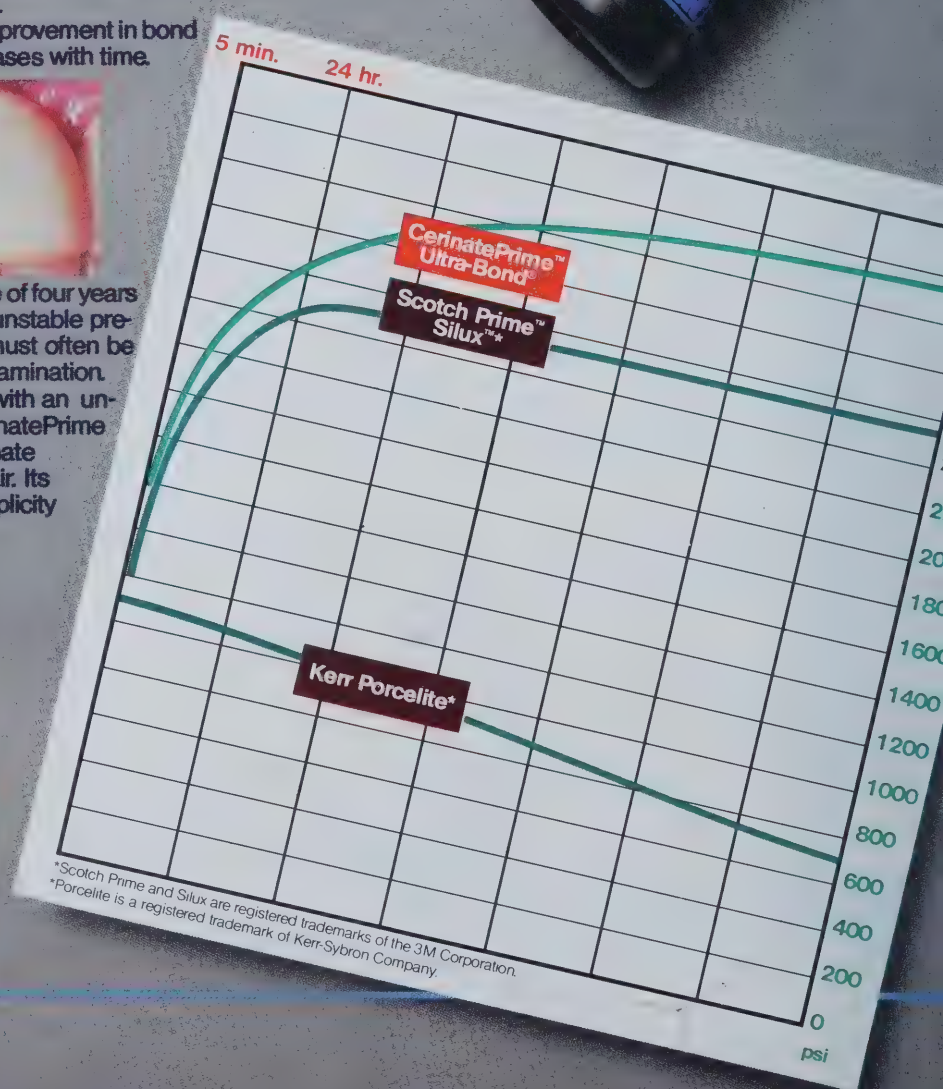
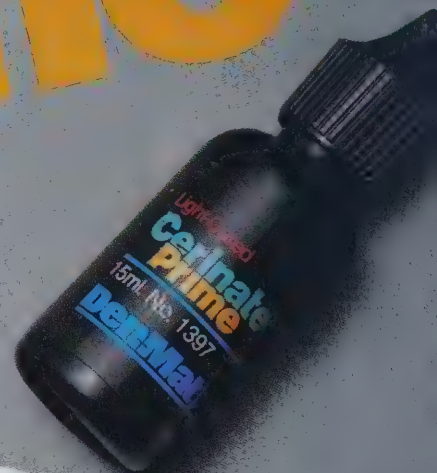
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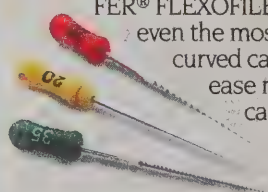
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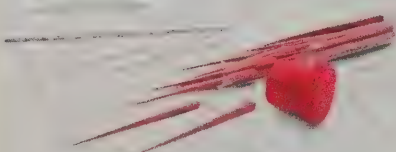


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¹Krupp, J.D., DDS, MS; Brantley, W.A., Ph.D; Gerstein, H., DDS: An Investigation of the Torsional and Bending Properties of Seven Brands of Endodontic Files. Jnl. of Endodontics, Vol. 10, No. 8, August, 1984. 372-380

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Editorial

Halifax '86

'LOOKING TO THE FUTURE'

Meeting the challenge

Elsewhere in this edition of the JCDA there is a reference to an exciting challenge "Canada's Challenge for the America's Cup" — the yacht that will represent Canada in the 1987 America's Cup event in Australia.

Delegates to the CDA Convention in Halifax will hear about it from Don Green, Vice-Chairman, Canada's Challenge for America's Cup, Inc.

Facing challenges is nothing new for those who live in Atlantic Canada. Fierce gales, heavy seas or icy blasts do not deter the stalwart sea captains from embarking on North Atlantic passages, nor schooner crews from wresting their livelihood from beneath the waves.

Halifax '86 is a three-chapter story about challenges.

It began — as Chapter One — about three years ago, when the CDA tossed out the challenge to Nova Scotia confreres to develop a high-calibre national convention program.

Atlantic Canada's tradition has prevailed.

That challenge, as all fortunate delegates will soon discover, has been met admirably, with an international class scientific program, social program and spouses' program.

Challenge Two is directed to all the dentists of Canada. The opportunity to attend these significant and educational presentations should not be missed. It is crucial, because it will prepare dentists for the greatest challenge of all — to cope with future developments in this profession.

Challenge Three is a massive one. New facets are developing at a faster pace than ever before in the history of dentistry. They are occurring in restorative dentistry, in oral pathology, in dental biomaterials, oral and maxillo-facial surgery, prosthetics, gerodontology, hazards in practice, such as AIDS, payment for services and the need for greater attention to practice management.

The speakers of international repute in their fields will challenge you to think about these things, and to think constructively.

They will present the facts, explain the trends and offer possible solutions to present problems.

It is not possible to practice dentistry without instruments.

And it will not be possible to successfully meet the challenges of the future without the most important instrument we all have at our disposal, an informed mind, to intelligently cope with challenging circumstances.

Practitioners can rarely enjoy the luxury of sitting quietly in the office or clinic, developing their own game plan for the future. Even if it were possible, it is unlikely that many new concepts could occur in such isolation.

It should therefore be obvious that attendance at the scientific sessions on an occasion such as Halifax '86 can be a priceless investment in future professional well-being.

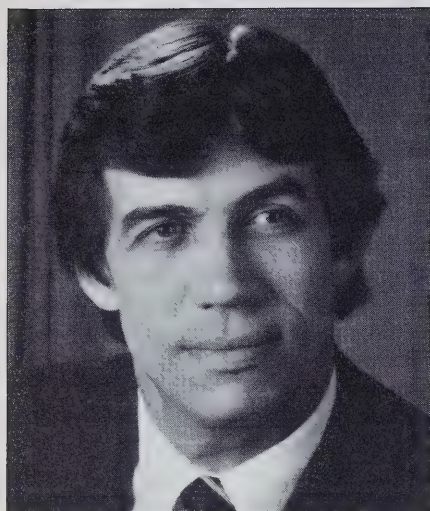
Some of you may read into this implications that you have not been keeping up to date. However, today, because of the speed at which new developments are occurring, being up to date no longer appears to be good enough.

Just a few short years ago, the future arrived much more slowly. Today, there seems to be little time to prepare.

A practice won't suddenly die a ghastly death if you don't attend the Convention sessions. On the other hand, the acquisition of some good preventive medicine may soon be essential to ensure its continued good health.

*Clarence Metcalfe, BJ,
Associate Editor, JCDA*

News Update



Kenneth L. Zakariasen, DDS, MS, PhD

DR. KENNETH ZAKARIASEN NAMED DEAN AT DALHOUSIE

Kenneth L. Zakariasen, DDS, MS, PhD, who until recently was Professor and Chairman, Division of Endodontics, University of Alberta, became Dean of Dentistry and Professor of the Department of Restorative Dentistry at Dalhousie University, Halifax, on July 1.

He succeeded Dr. Ian C. Bennett, who had served in that office since 1976.

Dr. Zakariasen admirably fits the description — "a man of many parts." He and his family enjoy a wide range of sports and fitness activities. He is active in his church and community and enjoys getting involved in home improvement and landscaping projects.

Born in Minnesota

Born in Canby, Minnesota, in 1945, Dr. Zakariasen attended the College of Liberal Arts, University of Minnesota and received his BA there. He then moved to the University's School of Dentistry where he graduated with a DDS in 1970. He proceeded into specialty training and received his Certificate in Endodontics in 1972 and MS in Endodontics in 1975. He continued his postgraduate work in the University's Graduate School and was awarded a PhD in Epidemiology in 1978.

He maintained a private general practice in Minneapolis, Minnesota, on a part-time

basis from 1970 to 1973, and then a practice limited to endodontics, until 1979. He was also an instructor in the Department of Endodontics at the University of Minnesota from 1972 until September of 1978.

From July, 1970 to June 1973, and again from July, 1974 to February, 1977, he was a Post-Doctoral Research Fellow in Dentistry at the University of Minnesota. From July of 1973 until September of 1978, Dr. Zakariasen was Coordinator of Undergraduate Endodontics at his Alma Mater. He then became Assistant Professor and Associate Chairman of Endodontics for a one-year period. From 1980 until June of 1982, he was Director of the Division of Endodontics at the University Hospital, University of Iowa.

From September of 1979 to June, 1982, Dr. Zakariasen was Associate Professor and Chairman, Department of Endodontics at the University of Iowa.

In July of 1982, he was appointed to his post as Professor and Chairman, Division of Endodontics at the University of Alberta. He also carried on a part-time private endodontics practice in Edmonton, Alberta.

Active in dental organizations

Dr. Zakariasen continues to be active in dental organizations, and has served as a consultant, editor and as a member of review panels. He has reviewed articles for the publication, *Pediatric Dentistry*, served as consultant to the Pan American Health Organization (designed and carried out a dental epidemiologic research study on Montserrat, B.W.I.), was dental consultant to the Board of Pensions, American Lutheran Church, and in 1983-84, was Chief Examiner, British Columbia College of Dental Surgeons, Endodontic Specialty Examination.

He has served as a member of the Research Committee, Association of Canadian Faculties of Dentistry and is presently chairman.

He has offered leadership and counsel in a wide variety of university and faculty committees at the Universities of Minnesota, Iowa and Alberta.

Memberships

He is an active member of the Canadian Dental Association, the Alberta Dental

Association, the Canadian Academy of Endodontics and the American Association of Endodontics, the International Association for Dental Research and the Canadian Association for Dental Research.

Dr. Zakariasen's papers have been published extensively in national and international refereed journals, including the *Journal of the Canadian Dental Association*.

He has been invited as a presenter and guest lecturer at dental meetings and symposia and at universities across the North American continent.

Dr. Zakariasen's involvement in research have included such fields as: Microbiologic, debridement, sealing and biologic effects of lasers in endodontic therapy, Apical plugging materials and techniques, Endodontic instrument design and function, Development of new endodontic obturation materials and techniques for application, Methods of testing microleakage, Radiology in endodontics, Dental epidemiology and evaluation of and technique development of ultrasonic and sonic instrumentation.

Sports oriented

The new Dean told JCDA that he has always been quite sports oriented and became a competitive swimmer as a boy. He expanded this interest into teaching and coaching swimmers while in university. In more recent years, he and his wife Paula (who is a certified fitness instructor) and family — Kristin, 17, Kenneth II, 13 and Stephanie, 7, have been involved in outdoor activities such as cross-country skiing, mountain hiking, jogging, etc., to maintain their physical fitness.

Dr. Zakariasen and his son are engaged in the Korean martial art of Tae Kwon Do and were candidates for black belt level at press time. Recently, his two daughters have also become involved in this activity.

In community service, he has been serving on the board of his Tae Kwon Do association and enthusiastically supported a fundraising drive for his daughter's ringette team.

He has been adult education leader in Calvary Lutheran Church in Edmonton, and a member of the executive board for the Lutheran Campus Ministry, University of Alberta.



Ian C. Bennett, BDS, DDS, MSD

DR. IAN C. BENNETT: A DISTINGUISHED CAREER IN TWO COUNTRIES

Dr. Ian C. Bennett, the outgoing Dean of Dentistry at Dalhousie University, has been enjoying distinguished careers in dental education in two countries — Canada and the United States.

Born in England

Born in England, Dr. Bennett began to exhibit academic prowess as a boy, when he was awarded a scholarship (seven years tuition) to Birkenhead School, Birkenhead, Cheshire. More academic honors came his way in 1950, when he received a university scholarship (tuition and maintenance for six years, to attend Liverpool University School of Dentistry).

He was awarded a Bachelor of Dental Surgery degree from that University in 1956.

Dr. Bennett was in general practice in Greasby, Cheshire for a short time in 1956, and then became involved in an expedition in Greenland and a two-year posting in the Canadian Arctic. He served as medical officer with an Oxford University geological expedition to West Greenland from July to October, 1956. Later that year, he was appointed Dental Officer with the federal Public Service, based in Aklavik. He served there until 1958.

Following this experience, Dr. Bennett conducted a private practice in pedodontics in Vancouver, from 1959 to 1961.

Another far northern opportunity came his way in 1961, and he served as Dental Officer in the Eastern Sector of the Canadian Division of the Distant Early Warning (DEW) Line, until 1962.

DDS in 1959

Dr. Bennett received his DDS degree from the University of Toronto in 1959 and the same year, became a Licentiate in Dental Surgery of the Royal College of Dental Surgeons of Ontario.

He engaged in post graduate specialty studies in pedodontics at the University of Washington, Seattle, from 1962 to 1964, and received his MSD there. His thesis was: "An investigation of the Enamel of the Teeth of Dogs that have been given Tetracycline during their Period of Dental Development."

In 1963 Dr. Bennett became Associate Professor and Head of the Division of Pedodontics in the Faculty of Dentistry, Dalhousie University, in Halifax.

Career in U.S.A.

In 1965, he embarked on a career in dental education in the United States, serving as Assistant Professor of Pedodontics at the University of Kentucky, until 1968, when he became Associate Professor. From 1966 to 1967, Dr. Bennett was also Assistant Coordinator of Medical Centre Television and of the Division of Medical Centre Communications and Services (1967). He served as Director of the latter, 1967-68.

In 1968, Dr. Bennett became Associate Dean of the College of Dentistry of the University of Medicine and Dentistry of New Jersey, in Newark, and Associate Professor of Pedodontics. In 1969 he became Dean and Professor of Pedodontics and served in those positions until 1976.

Returned to Dalhousie

Dr. Bennett returned to Dalhousie University in 1976, as Dean of Dentistry and Professor of Pedodontics.

Dr. Bennett continues to be active in research and his particular fields of interest are: Demonstration of the Presence of Tetracycline in Enamel, Measurement of Tetracycline in Enamel and Dentin, Organ Culture of Bone in Presence of Tetracycline, Survey of Attitudes of Graduate Pedodontists, Study of Indirect Pulp Therapy in Primary Teeth, Study of the Effectiveness of Videotape for Transfer of Teaching Material to Medical Students at an Affiliated Hospital, and, Study of Applicants for D.A.T. in Canada and the United States.

Active in Associations

Dr. Bennett has been involved as an active member of a wide variety of dental organizations, local, national and international. These include: the American Academy of the History of Dentistry, the American Academy of Pediatric Dentistry (Fellowship), the American Association of Dental Schools, the American Association for the

Advancement of Science, the American Association of University Professors, the American College of Dentists (Fellowship), the American Dental Association, the American Society of Dentistry for Children, the Canadian Academy of Pediatric Dentistry, the Canadian Dental Association, the Canadian Association for Dental Research, Fédération Dentaire Internationale, the International Association for Dental Research, the International College of Dentists (Fellowship), the New York Academy of Sciences, the Nova Scotia Dental Association, and the Society of Dental Specialists of Nova Scotia.

He has held major offices and chaired committees in many of the foregoing organizations, notably, as President of the Canadian Academy of Pediatric Dentistry, 1980-85 and with CDA as a member of the Council on Education and Accreditation, Consultant to the Council on Dental Care Programs and Chairman of the Committee on D.D.S. and Specialty Programs. He continues to be a member of the CDA's Ad Hoc Committee on Documentation and the Dental Aptitude Test Committee. He is representative on the ADA/AADS Liaison Committee on Surveys and Reports. With the Association of Canadian Faculties of Dentistry, Dr. Bennett serves as a member of the Ad Hoc Committee on Finance.

Dr. Bennett's papers have been published internationally in refereed dental and research journals.

Family

Dr. Bennett and his wife, Loreen, have two children, Davis Bayer Bennett, 20, and Alessandra Lee, who is 18.

CDA AND CIDA SPONSOR ORAL HEALTH PROGRAMS

Two different programs in Caribbean islands have received funding from both CDA and the Canadian International Development Agency (CIDA)

One grant from CIDA in the amount of \$5,600 will go toward a continuation of the St. Kitts/Nevis mouthrinse program which began in April 1983. The Canadian Dental Association is also contributing toward the continuation of this program. Under the program, elementary school children will continue to be educated on the practices of good oral hygiene and given a fluoride mouthrinse through the school program.

Dr. John Blackmer, Director of Dental Health Services for the New Brunswick Department of Health, became involved with the project at its inception, since the mouthrinse program in New Brunswick is considered very successful. The latest grants from CIDA and funding from the CDA

will allow Dr. Blackmer to visit the islands to check on the continuation of the program and evaluate its current status.

"The original intent was that once the program was established, the Island people were to fund it and keep it in operation," said Dr. Blackmer. "The latest visit to the Islands will be to ensure that supplies are adequate and to check on the operation of the program."

The government of St. Kitts has indicated

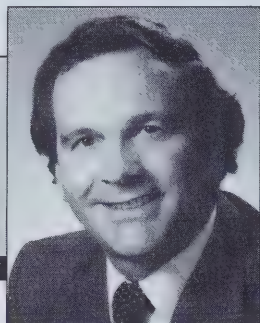
a willingness to support the program and Dr. Blackmer's visit will be undertaken to offer assistance and evaluation of the program where necessary.

A second project, which also is being supported by grants from CDA and CIDA, is an educational program in Haiti. For that program, CIDA is granting \$26,500 which will send Dr. Daniel Kandelman, of the Université de Montréal, four colleagues and a dental hygienist to Haiti for rotating periods of two

to three weeks. The program is to provide educational assistance to dental faculty members at the Dental Faculty in Haiti. Canadian professors in the specialties of oral surgery, pediatric dentistry, periodontics and preventive dentistry will provide instruction to teachers at the Haitian Faculty of Dentistry.

Late in 1985, Dr. Kandelman travelled to Haiti to analyse the oral health of Haitian children. His proposal to provide educational assistance to the Haitian Dental Faculty was made following this initial visit.

"We expect to visit Haiti by next fall," Dr. Kandelman told the Journal.



PRESIDENT'S COLUMN

Dr. Brad Holmes

FAREWELL? ALREADY?

When I looked at the suggested list of topics for this column and saw that this was the Presidential farewell, I was really taken aback. Although the column is written two months in advance of publication, it still seems like an awfully short year. Having taken over the position on October 3, 1985 and terminating it on August 27, 1986 (as I am officially President until the end of the Convention) my term is probably the shortest on record. I am sure there are a lot of grateful people, not the least of whom are our Executive Director and his Executive Assistant, a.k.a. Jardine Neilson and Sandra Deziel.

Together, with great effort, they almost manage to keep me on schedule with assignments, meetings, etc. I must comment on the gratitude I feel for all the help and encouragement provided by them over the year. With almost daily contact, I am sure that they will be glad to hear the last of my usual words, "What am I supposed to be doing this week?"

It has been a year which I would describe as sometimes exciting, sometimes frustrating, but always interesting. As usual, we had some successes and some failures, but all in all, I feel very positive about the direction in which CDA is moving. Beyond the routine day-to-day management and provision of services, the CDA is striving to bring the profession a brighter and better future. There are many exciting happenings in dentistry today and I feel confident that our Association is preparing the necessary groundwork to meet the challenges of the future head-on. I believe the CDA serves our profession better than most other professional organizations and I know that the leadership of our Association will continue to strive to meet the needs of our members.

Although there was much work and travel during the year, there was also much fun. By the time this article is printed, I will have had the opportunity to visit every province, with the exception of Newfoundland. I still have never been to that fine province and, due to a scheduling conflict, was unable to attend its annual meeting this year. Perhaps our President next year will afford me the opportunity of attending in his stead.

The hospitality shown to me as I travelled across the country was just spectacular. The friendships made this year will live on long after they are saying "Brad, who?" at the CDA. Certainly, the people make the job worthwhile. I am continually impressed with the calibre of people in our organizations who are prepared to sacrifice time and money on behalf of the profession.

As a final note, I would like to express my sincere thanks to all of the staff at headquarters. Particularly to the Directors, Linda, Jean and Brian; our Editor, Carolyn; Executive Assistant, Sandra; and especially our Executive Director, Jardine. Your support, encouragement and friendship have made it a very special year for me. To Joel Neal, our newest CDA Director, I'll say welcome, and I'm thankful for your help as well. To Ralph Crawford and John Robertson, you have my deep appreciation for your support and, to the Executive Council, my thanks for your patience and help. Because of your support, I enjoyed my year immensely. I wouldn't have missed it for the world.

DR. HAROLD HILLENBRAND INTERNATIONALLY RENOWNED DENTAL LEADER PASSES AWAY

Dr. Harold Hillenbrand, who achieved world-wide distinction as a leader in dental education and administration, died on May 31, in his 80th year.

The general practitioner who served as Executive Director of the American Dental Association (ADA) for 24 years also gained the respect and gratitude of Canadian dentistry. He served as a trustee on the Board of the Canadian Fund for Dental Education (CFDE) for nine years (1970-79), the only non-Canadian ever to serve in this capacity.

CDA in his debt

Dr. William G. McIntosh, President of the Canadian Dental Association in 1959, and Executive Director of the CDA from 1964 to 1976, recalls that his "very good personal friend certainly did a lot for Canadian dentistry."

Dr. McIntosh said "I always had great admiration for Dr. Hillenbrand's ability, as an administrator, as a speaker, and as a man who would make a decision and would follow it through. He was very helpful to those he thought he could help."

Dr. Hillenbrand fostered a "very close working relationship" with Canadian confreres in the profession, Dr. McIntosh told JCDA. When Dr. McIntosh became Executive Director of the CDA, he was invited, on several occasions, to sit in at ADA executive meetings, to monitor, and participate in, discussions on matters of mutual concern.

Dr. Abraham Kobren, president of the ADA said "Harold Hillenbrand's contributions to the dental profession were infinite. He was instrumental in advancing the standards of dentistry throughout the world."

Past-President of FDI

Dr. Hillenbrand was a staunch supporter

and past-president of the Fédération Dentaire Internationale (FDI) and was the first dentist to serve in an advisory role to the official United States delegation to the World Health Organization.

He was the recipient of a host of international awards including Chevalier de l'Ordre de la Santé Publique from the Government of France.

Dr. Hillenbrand was an honorary member of dental associations in 21 countries. The CDA conferred this honor in 1957. A highlight of his career was his appointment to head a United States dental mission to the Soviet Union, in 1961.

Born in Chicago

Born in 1906 in Chicago, Dr. Hillenbrand graduated from Loyola University's Chicago College of Dental Surgery in 1930. He conducted a private general practice from 1930 to 1945. He also served as an associate professor of ethics and social relations at Loyola from 1938 to 1951.

ADA Journal editor

The American Dental Association first began to enjoy the benefit of his talents in 1942 when he was named assistant editor of the Journal of the American Dental Association. By 1945, he was serving as editor. That year he was appointed as secretary of the ADA.

Dr. Hillenbrand's involvement in dental journalism began in 1937, when he was appointed editor of the Chicago Dental Society's Bulletin. Under his leadership, the Bulletin developed into the CDS Fortnightly Review. In 1938, he also agreed to edit Desmos, the publication of the Delta Sigma Delta dental fraternity. He held that position for six years. In 1941, he became editor of the Illinois Dental Journal, and relinquished the Bulletin office in Chicago. He was appointed to the JADA staff a year later.

Even after his retirement from the ADA editor's office January 1, 1970, Dr. Hillenbrand did not lay down the editorial pen. He served as editor of the Journal of Dental Education of the American Association of Dental Schools, until 1972.

Executive Director, 1946-1970

Dr. Hillenbrand served as Executive Director of the ADA during a period of great development and growth of that organization.

The ADA's membership grew from 65,000 in 1946 to 112,000 in 1970. In the same period, the ADA budget, reflecting the membership growth and expansion in services, grew from \$600,000 to \$7.7 million.

Under Dr. Hillenbrand's leadership, the ADA played a major role in the establishment of the National Institute of Dental Research in Washington, D.C.



The late Dr. Harold Hillenbrand

ADA's own headquarters

One of his greatest contributions to organized dentistry in the United States was his leadership when the ADA established and constructed its permanent headquarters building in Chicago, in 1966.

On June 3, in the Harold Hillenbrand Auditorium in that building, friends, students and admirers of Dr. Hillenbrand gathered for a memorial service.

Great contribution to CFDE

Dr. Hillenbrand was a major influence in the founding of the American Fund for Dental Education.

CFDE trustees in Canada gratefully recall that he "made an outstanding contribution to the Canadian Fund for Dental Education" in its formative years.

The ADA recalled the contributions to dental education in the United States, and, with the American Fund for Dental Health, set up the Hillenbrand Fellowship in his honor. The fellowship was designed to provide experience in dental administration through a two-year program at ADA for young dentists interested in exploring career opportunities in organized dentistry.

His list of publications was phenomenal. He contributed a great many articles to the dental literature on topics such as socioeconomic aspects of dentistry, dentistry's public image and health legislation related to dentistry.

Many honors

The esteem and gratitude of organized dentistry and education institutions throughout the world materialized in a wide range of honors for Dr. Hillenbrand.

He received honorary degrees from 10 United States and Canadian Universities.

The Pierre Fauchard Academy awarded its Gold Medal and the National University of Ireland awarded an honorary degree. The Royal College of Surgeons of the United Kingdom honored Dr. Hillenbrand with a fellowship in Dental Surgery.

Memorials to CFDE

Dr. Hillenbrand is survived by his wife, Marie, and his son Gerald, of New York.

The family requested that contributions in the illustrious dental educator and administrator's memory be made to the American Fund for Dental Health.

Canadian dentists have been invited to do likewise, and may make contributions to the Canadian Fund for Dental Education (CFDE).

HEALTH SCREENING PROJECT:

Summary of Results of Physical and Laboratory Examinations Performed During 1985 CDA Convention by Dr. R. Elder, MD, FRCPC

During the three day period physical and laboratory examinations were performed on 175 dentists. Before the examination each dentist was asked to complete a two page questionnaire covering past medical history, current medical problems, vaccination history and current life style. During the 15 minute physical examination an assessment was made of general fitness and of major systems such as the cardio-vascular, central nervous, pulmonary, musculoskeletal and gastro-intestinal system. Rectal examinations were not performed.

Extensive laboratory procedures were conducted to detect a wide variety of acute and chronic diseases. Serologic tests were done to detect exposure to some of the infectious agents which spread through the close-contact environment which may occur in the dental operatorium. Samples of nail and hair were collected as part of a separate study to determine exposure to mercury.

Of the 175 participants 169 were males and six were females. Ages ranged 25 to 80 with an average of 44.7 years. Results of the physical examination are available on 174. Laboratory findings are available on 175 except that in one instance, a tube of serum submitted for hepatitis studies, was lost.

Summary of Physical Findings

This summary is derived from a review of each participant's history and physical examination and includes both current and past medical problems.

Eleven (6.3 per cent) were considered to be significantly overweight while another 10 (5.8 per cent) were somewhat overweight. Twenty (11.5 per cent) had some degree of hypertension and an additional

9 (5.2 per cent) had hypertensive blood vessel changes in their eyes. Eight (4.6 per cent) had serious hip-joint or knee joint problems. Two had had surgery for a pilonidal cyst. Three had cataracts and one was a known diabetic. One patient had had a coronary by-pass procedure and one had had, recently, a herpes simplex whitlow.

Laboratory Studies

It was not possible to collect fasting

samples of blood for biochemical studies. In consequence, elevated blood glucose and blood triglyceride levels may have little significance. Twelve participants were found to have elevated blood glucose levels which were not considered to be significant. One had a more highly elevated level along with the presence of glucose in urine. Fifty-one participants had elevated blood triglyceride levels, although in some instances, the elevations may have been a reflection of an

increased food and alcohol intake during the convention. In several instances the elevated levels correlated well with the participants drinking habits and/or with his or her weight. Three patients who had elevated triglyceride levels also had elevated blood cholesterol levels.

Nine participants had increased blood levels of creatine kinase isoenzymes. Although increased isoenzymes are seen in a variety of conditions including myocardial infarction, they are also seen in joggers and other fitness enthusiasts. Twelve participants had moderately elevated alanine aminotransferase enzyme blood levels. These enzymes are produced by the liver and the elevated blood levels may reflect a previous viral infection such as hepatitis or infectious mononucleosis. Three participants had elevated bilirubin blood levels, suggesting some liver impairment. Five had elevated blood ureal levels suggesting some impaired kidney function.

Serologic Studies

HTLV-III/LAV (AIDS) Virus

Extensive serologic testing at the Laboratory Centre for Disease Control failed to detect antibody to this virus in any of the participants.

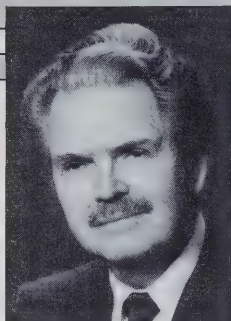
Hepatitis B Antigen and Antibody

Serologic studies performed at the Regional Public Health Laboratory revealed that one participant was antigen positive. One hundred and three were antibody negative including twelve who had received Hepatitis B vaccine. While several of those had not yet completed the vaccination program or had completed it only recently, others had completed the program for as long as two years and, clearly, were vaccination failures. Most vaccination failures have been attributed to injection of the vaccine into the gluteus muscle rather than into the deltoid muscle.

Sixty-nine participants were antibody positive. Of these, forty-six were known to have been vaccinated while the remaining twenty-three are presumed to have had a past infection. A native Hepatitis B antibody rate of 13.2 per cent would seem to compare favourably with that found in other health care workers who are at risk for this infection. It should be noted, however, that the evidence of Hepatitis B antibody in non-immigrant Canadians is in the order of 0.5 per cent.

Epstein-Barr Virus

Epstein-Barr (E.B.) virus causes infectious mononucleosis in temperate climates, pharyngeal carcinoma in Chinese and Alaskan Inuit and Burkitt's lymphoma in



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

Did You Know? That in response to growing concerns over the proliferation of Alternate Delivery Systems such as capitation, P.P.O.'s, closed panel, H.M.O.'s etc. that the CDA Board of Governors established in September 1984 a Committee on Third Party Dental Plans.

Prior to 1984 all aspects of Third Party Plans and Insurance were dealt with by a sub-committee of Health Care Council. Although effectively handled by Health Care for many years it was recognized that a separate, small group of dentists with particular knowledge in insurance matters, could meet, deliberate and activate more efficiently than a council that met twice a year.

The Third Party Dental Plans Committee Terms of Reference assure all Canadian dentists that a national, unifying group of experts are working on their behalf. . .

1. to act on behalf of CDA to assist its members in their interactions with third party plans.
2. to liaise with representatives of the Canadian Health and Life Insurance Association.
3. to liaise with provincial dental associations regarding third party plans.
4. in co-operation with provincial associations to act as an information source to consumer groups, and company personnel administrators.
5. to be responsible for the ongoing review and administration of CDA standard claim forms, and CDA list of fee codes.
6. to identify and inform Executive Council on matters which require lobbying with Canadian Government.
7. to be responsible for review and monitoring of alternative methods of delivery of dental care.

In a very short period of time the Committee, (Dr. Don MacFarlane, chairman), Drs. Don Gutkin, Toby Gushue and Bill Leggett), has provided evidence that its present and future endeavors are an indication that *national* needs are best served by CDA *national* interests.

Did You Know? In 1978, ever mindful that the dental student of today is the dentist of tomorrow, the CDA formed the Council on Student Affairs. The 14 member Council is comprised of 10 third-year students (one from each Canadian Faculty), two fourth year students and two new graduates. The purpose of the council is to discuss, debate, and recommend actions pertaining to student interests and concerns.

The Council meets twice a year, but through representation on the CDA Board of Governors, Council on Education and Accreditation, NDEB, ACFD, and the American Student Dental Association, Canadian dental students have input into all major aspects of organized dentistry. Ninety-five per cent of the approximately 2,000 dental students in Canada are voluntary student members of the CDA.

Did You Know? From the Dominion Dental Journal, January 1905. . .

"the first territorial dental clinic was held in Calgary on December 27th, 1904. There were quite a number present, several of them going six and seven hundred miles to attend. It was by far the most important dental meeting ever held in the Territories, for in addition to the clinic, the all-important question of Dominion registration and the Territorial relationship thereto was to be up for action."

children in parts of Africa. It is thought to spread by droplets requiring close contact. Infectious mononucleosis is sometimes referred to as kissing disease.

Clinically evident infectious mononucleosis is rare in pre-pubescent children, although many are infected. It is not uncommon in teenagers and young adults. It now is occurring more frequently in older adults.

Serologic tests for antibody to the viral capsid, the E.B. virus, were conducted at the National ESB Reference Service at St. Justine's Hospital in Montreal. Eight (4.6 per cent) of 175 dentists had no serologic evidence of infection by this virus. Sixty-seven (38.3 per cent) had low levels of antibody to the E-B virus while 100 (57.1 per cent) had relatively high levels. Comparable data from other occupation groups of similar composition are not readily available. In the opinion of Dr. Joncas the Director of the National ESB Reference Service, the high rate of positive responses is not particularly unusual.

** Editor's Note: Dr. Robert Elder recently retired as the Director of the Ottawa Civic Hospital's Medical Laboratories. He has been active in the Canadian Medical Association for many years and is an experienced and respected Canadian medical microbiologist. As a service to the Health Screening Project, Dr. Elder agreed to coordinate the medical services for the Project and to obtain the services necessary for the Project either at cost or at no charge to the Canadian Dental Association.*

SCARBOROUGH DENTIST 'EARLY BIRD' WINNER

Dr. Robert Worling, who practises at 2488A Kingston Road, Scarborough, Ont., is the "Early Bird" Halifax '86 Convention registration prize winner.

He has won a round-trip for two to anywhere in the world that Air Canada flies, except Singapore and Bombay.

Dr. Worling, a graduate from the Faculty

of Dentistry, University of Toronto in 1957, and a member of the Canadian Dental Association, registered as a delegate to the Halifax Convention last April 23rd.

The draw, from among the names of those registered to June 15, was made at CDA headquarters in Ottawa, by CDA's Executive Director, A. Jardine Neilson.

NEW BRUNSWICK SOCIETY ELECTS DR. ROXBOROUGH

A Fredericton dentist was named President of the New Brunswick Dental Society at the 1986 Annual Meeting, held in Moncton.

Dr. James C. Roxborough was elected to a one-year term, succeeding Dr. Clement LeBlanc, of Moncton.

The President-Elect is Dr. E.G. Schroeter, of Rothesay, and Dr. J.G. Thompson continues in the office of Executive Director/Registrar. Two new board members were named: Dr. Luce Marchand, of Newcastle, NB, and Dr. Vincent Shannon, of Saint John.

The Society has also set up a new Economics Committee, to study economic problems, indications and implications. Dr. Michael Horsman of Shediac heads this new body.

New provincial by-laws

The Moncton Dental Society played host for the one-day session during which the provincial Society gave approval to new and updated by-laws drawn up for New Brunswick's dental hygienists and dental assistants.

A continuing education seminar on Practice Management was conducted by Dr. J.L. Britain, of Guelph, Ontario.

Guest speaker for the occasion was Dr. Brad. Holmes, President of the Canadian Dental Association. He spoke about

current activities of the CDA, the issues involved and the successes being realized, at the national level.

Dr. Roxborough

Dr. Roxborough received his Bachelor of Science degree from the University of New Brunswick in 1972 and was graduated with his DDS from Dalhousie University, in 1976.

Within the profession, Dr. Roxborough has served as President of the Fredericton Dental Society and as a member of the Board of Directors of the New Brunswick Dental Society. From 1981 to 1984, he was chairman of the Benefits Committee of the NB Society, at the national level.

He and his wife Charlene have two children.



HALIFAX '86: YACHTING EXECUTIVE TO SPEAK ON CANADA'S ENTRY IN AMERICA'S CUP

The sheer, sleek beauty of a yacht under full sail appeals to the senses and imagination of even the most confirmed landlubber.

This romantic symbolism of the Maritimes will be the subject of the Keynote Address at the opening breakfast at Halifax '86, on Monday, August 25. Don Green, Vice-Chairman, Canada's Challenge for America's Cup, Inc., will be the speaker.

Mr. Green has earned an international reputation for his ability to identify and attain goals in the field of high technology and the arena of competitive sailing.

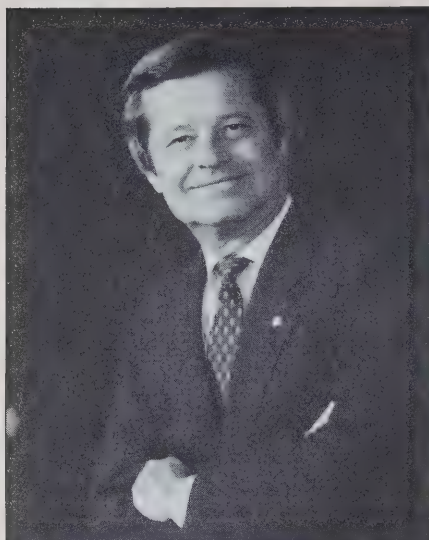
Syndicates merged

The excitement and imagination of Canadians will be fired next year when the Canadian entry prepares for the challenge off Freemantle, West Australia, and makes its bid for the America's Cup.

Because of the recent merger of the two syndicates, True North and Canada II, it will give the Canadian entry a stronger representation in the thrilling event, through a combination of experience and talents of the officials and crews.



Mr. Jardine Neilson, Executive Director of the CDA is seen as he drew the name of the winner of the Convention '86 "Early Bird" registration prize. With him is CDA Executive Assistant, Sandra Deziel. (Photo : Carolyn Hackland)



Mr. Don Green

Canadians were proud of the outstanding accomplishments of the yacht Canada I, when she challenged for the America's Cup off Newport, Rhode Island, in 1983.

Mr. Green has already captured the attention of the international yachting community with the 12-metre yacht, "True North."



Event began in 1851

In 1851, a new era in international yacht racing was born when "America", representing the New York Yacht Club, astonished Britain's elite yachting community by winning the Hundred Guineas Cup in the British Royal Yacht Squadron's annual free-for-all race around the Isle of Wight.

Re-named the "America's Cup", the trophy was transported to New York, where it remained for 132 years. The New York Yacht Club successfully defended it in 24 subsequent challenges. When Australia's Alan Bond wrested the Cup from New York in 1983, he ended one of the longest winning streaks in history and opened America's Cup to true world competition. During the 132 years of United States domination, Canada was represented only twice: in 1876 with the "Countess of Dufferin" and in 1881, with "Atlanta."

Canada returned to America's Cup competition in 1983, after an absence of 102 years.

TABLE CLINICS — HALIFAX '86

The following Practitioners' Table Clinics will be held on Tuesday afternoon, August 26, from 2 to 5 p.m., in the Cornwallis Room, World Trade & Convention Centre.

Clinician	Topic
Dr. Crawford Bain	Effects of Prophyljet on Composite Resins
Dr. Robert Brandon	Interpersonal Communication Techniques
Dr. Danny Coffin	Forced Eruption
Dr. Edward Cooperman	Group Practice in the 80s
Dr. George Glasser	Furcation Management
Dr. J.D. Jones	Electronic Monitoring of Tooth Brushing
Dr. K. Kwall	Ontario's Dental Coach Program
Dr. Brian Kucey	Determining the Treatment Position
Dr. Neil MacArthur	Medical Emergencies in the Dental Clinic: How to Prepare for their Successful Management.
Dr. Marlene Mader	Case Report: Dilantin/Cyclosporin Induced Gingival Hyperplasia
Dr. Shahram Naghibi	Citric Acid Treatment of Dentinal Root Surfaces: An Innovation
Dr. John Sterrett	Rational Path of Insertion, Partial Dentures
Dr. Randy Taylor	Periodontal Management of a Patient with Malignant Hyperthermia
Dr. Betty Toporowski	

Projected (Illustrated) TABLE CLINICS.

These clinics will be held on Monday, August 25 in Mariners Suites 2 and 3, in the World Trade and Convention Centre.

Clinician	Topic
2:00 p.m. Dr. Aaron Fenton	"Clinical Applications of Osseointegrated Implants"
2:20 p.m. Dr. Kenneth Zakariasen	"Ultrasonic, Sonic and Mechanical Systems in Endodontics"
2:40 p.m. Mr. Gordon Whitehead Ms. Anne Gallagher	"Noise in the Dental Workplace and its Effect Upon Hearing"
3:00 p.m. Dr. R.S. Turnbull	"The Use of Bone Grafts in Periodontal Surgery"
3:20 p.m. Dr. W.R. Reesor	"Communicating with Computers"
3:40 p.m. Mr. Gylfi Baldursson	"Sensori-neural Loss and TMJ Dysfunction"
4:00 p.m. Dr. Trevor Lyons	"No Fault Periodontics"
4:20 p.m. Dr. David Chernin	"Endodontic Radiology"
4:40 p.m. Dr. Lynn MacPhee	"The Effects of Chewing Tobacco on the Oral Cavity"

More details August 25

Not all the details of Canada's entry in the 1987 challenge had been formulated at JCDA press time, including which of the two yachts, "True North" or "Canada II", would travel to Australia. Mr. Green will reveal such pertinent data during his address on August 25.

Whichever yacht does win the nod, will use the Royal Nova Scotia Yacht Squadron as its host club.

FREDERICTON DENTIST WINS MARITIMES PRIZE

Dr. Brian Rinehart, of Fredericton, New Brunswick, was the winner of an early registration prize of a two-day sojourn for two at The Pines, a luxurious resort near Digby, Nova Scotia.

Dr. Rinehart qualified as being the first CDA Convention '86 registrant from the Atlantic Provinces.



R.K. House, PhD

'THE FUTURE OF THE PRIVATE PRACTICE'

Dr. R.K. House, who heads the firm, R.K. House & Associates, will deliver a paper on "Manpower and the Future of the Private Practice" during a symposium update on Dental Manpower, on Wednesday morning, August 27.

Dr. Ian Vogan, who is general chairman of the 1986 CDA Convention, will be the moderator of this Convention session.

Manpower study

Dr. House, whose firm of economic consultants produced the highly significant document, "Manpower Supply Study. Scenarios for the Future: Dental Manpower to 2001", for the Canadian Dental Association, told JCDA that his paper will "examine the impact of excess dental manpower on the future of private practice."

This paper will take the earlier research of Dr. House a step beyond, by considering in further detail, the implications of the declining caries rate, demand for periodontal treatment, and so forth, and develops a comprehensive supply and demand analysis for dentistry. This analysis is being extended to a consideration of future dental income, employment opportunities, and practice planning strategies.

Dr. House said his paper will conclude with an outline of the policy options facing the profession, and tactics for the individual practitioner, to help him survive the impending crisis.

1986 CDA/DENTSPLY STUDENT CLINICIAN PROGRAM

The following clinics will be held Monday, August 25, in the Highland Suites, 10 & 11.

NAME & ADDRESS	SCHOOL	CLINIC TITLE
M. André Chamberland Montreal, Quebec	Université de Montréal	Les implants dentaires
Miss Janet Louise (Jay) Walker Islington, Ontario.	University of Western Ontario	Oral Candidiasis
Mrs. Claire Tjan-Eddyanto Mississauga, Ontario.	University of Toronto	In Vitro Microleakage of a Proprietary Dentine Bonding Agent Utilizing Different Restorative Techniques
Mr. Jerry Doberstein Edmonton, Alberta.	University of Alberta	Imaging of the "Temporo-mandibular Joint" (TMJ)
Mr. Jerry J. Baluta Winnipeg, Manitoba.	University of Manitoba	Three-Dimensional Cranial Reconstruction
Mr. Curtis Gill Mr. C. Bruce Hill Saskatoon, Sask.	University of Saskatchewan	Artificial Gingival Replacements
Mr. Juraj Benko Outremont, Quebec.	McGill University	Effect of Dentin Surface Treatment
Mr. Keith Stewart Kamloops, B.C.	University of British Columbia	Nuclear Magnetic Resonance Imaging
Miss Joy Graham Halifax, Nova Scotia.	Dalhousie University	Antibiotic Therapy in Periodontics
Miss Sylvie Lapointe Trois Rivières, Quebec	Université Laval	SIDA, cheminement diagnostic (AIDS - The Importance to the Dentist)

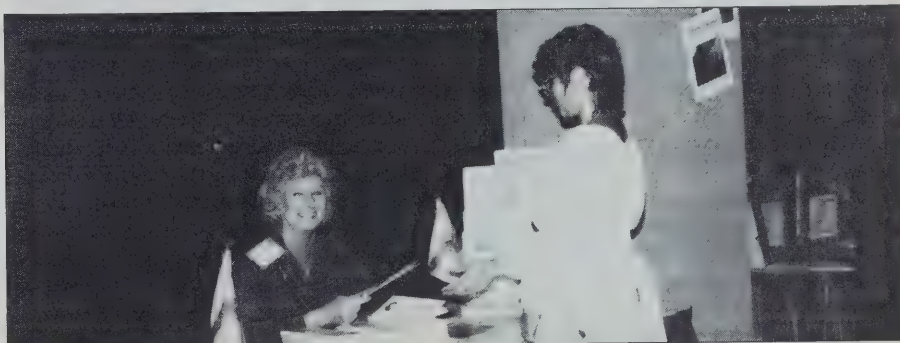
HALIFAX IN TORONTO??

As the photographs show, even at the

ODA Convention held recently in Toronto, some Nova Scotia accents were visible.



Dr. Andrew Thompson, Chairman of Publicity and Promotion for CDA's Convention in Halifax, and his family were all dressed in Nova Scotia tartan to meet and encourage Ontario dentists to attend the Convention, taking place later this month. Shown Left to Right are: Jardine Neilson, CDA's Executive Director, Dr. Andrew Thompson in sash, holding his two-year-old son Robert, in tartan suit, Ann Thompson, also in Nova Scotia sash and Dr. Brad Holmes, CDA's President who became suitably Nova Scotian for the occasion as well. (Photos: Carolyn Hackland)

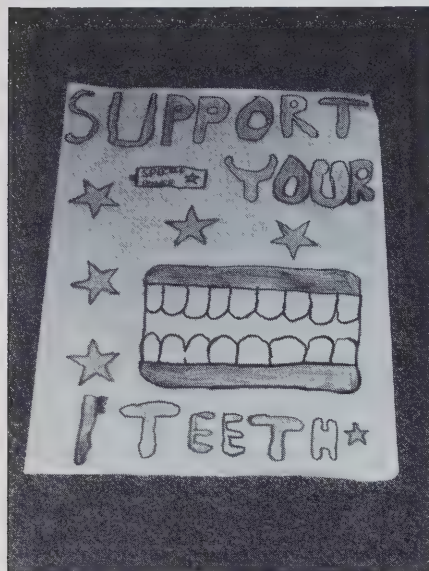


Kathy Mactaggart, CDA's Senior Administration Clerk ably provided information on all of CDA's services to interested Ontario delegates. She is seen here at CDA's special booth promoting the Halifax convention, answering questions from an ODA delegate.

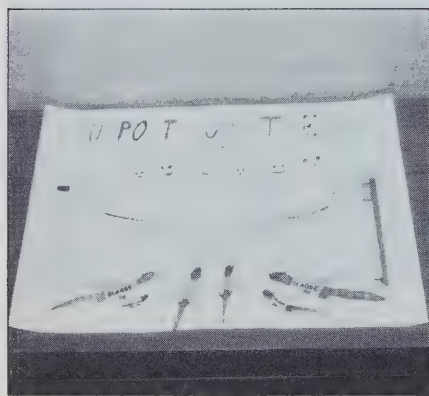
DENTAL HEALTH MONTH POSTER CONTEST WINNERS

All three winners in this year's Dental Health Month Poster Contest were girls and all three were from different parts of Ontario.

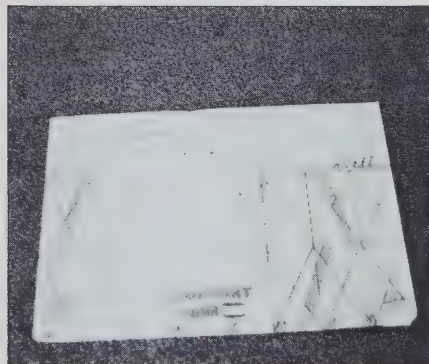
Although the theme of the contest could be anything related to dental health, all three



Michelle Burkholder's winning poster in the Kindergarten to Grade One category. (Photos: C. Hackland)



Joni Clegg, in grade 4, won for this entry in the Grades Two to Four category.



Jamila Maliha from Thunder Bay, Ontario, in grade Seven, won in the category of Grades Five to Seven.

winner chose the theme of "Support Your Teeth" which was used in the sample poster provided to local dental societies by Manifest Communications. Manifest is the consulting firm responsible for the Canadian Dental Association's Dental Awareness Program and this year's Dental Health Month materials.

In the Kindergarten-Grade One category, Michelle Burkholder of Simcoe, Ontario won first prize. Michelle attends Boston Public School in Simcoe and is five years old.

In the Grades Two to Four category, Joni Clegg, a Grade four student from North York, Ontario, won for her depiction of plaque lizards attacking teeth. Joni is eight-years-old. The contest in North York was sponsored by the North York Public Health Unit.

Jamila Maliha, who attends St. James School in Thunder Bay, Ontario won first prize in the Grade Five to Seven category. Jamila is 13 years old and is in Grade Seven.

All of the first prize winners will receive cheques from the Canadian Dental Association which will be used toward the purchase of a bicycle for each child.

The photographs show the winning posters.

"THE PROOF OF A GOOD INSURANCE PLAN IS IN THE CLAIM SERVICE"

The purpose of insurance is to protect you in the event of a claim. So what better way to judge an insurance plan than by the claim service.

Perhaps one of the greatest areas of concern for a dentist is the service for Long Term Disability and Office Overhead claims. The following are excerpts from letters CDSPI has received from two participants regarding their experiences with the CDIP.

"Having never been sick or absent from my office for any time in 21 years, it came as quite a shock to be driving to my cottage one summer evening, and looking up from the operating table the following morning.

The next few days were of great concern for my family. Fortunately a good friend of mine took matters into his own hands and had all of the paperwork for my disability claim done for my wife. The ease and simplicity with which this usually complicated procedure was handled was very reassuring.

Exactly when expected, my first cheques for LTD and Office Overhead arrived and in the amount which we expected.

This alone took a great deal of stress off my wife, who had her hands full with the hospital visits and the re-scheduling of my office during the six months I was recover-

ing. I was very pleased with the assistance my family and I received from CDSPI during my illness and recovery."

John R. Robertson, DDS, FICD(C)
Summerside, Prince Edward Island

"Since my car accident last year, I have come to realize the value of good insurance coverage and full protection. I have received many calls from friends in the profession enquiring about my coverage and the service my disability claim received. From my experience, I would recommend acquiring as much protection as possible since I see insurance premiums as an investment in the future; an investment that pays off should you suffer an accident or become ill.

As important as the amount of coverage, is its quality and the treatment you receive when you have to utilize your coverage. What you don't need is the constant irritation of endless forms and mounds of paperwork. My experience with CDSPI was a welcome respite from such hassles.

On a number of occasions, CDSPI recommended that I deal directly with the insurance adjudicator. Her response was courteous and co-operative, and resulted in a cheque being issued the same day. I feel I was well treated by CDSPI and its insurers."

Perry M. Rubin, DDS
Rexdale, Ontario

Submitting a Disability Claim

Submitting a claim for disability to the CDIP is as simple a process as described by our participants above.

The first step is to call CDSPI's toll-free phone number, and notify a Personal Service Representative of the claim. If the participant is unable to make this call, it can be easily done by a family member or close friend. A Claim Information Kit is sent out containing the Claim Form and complete instructions.

The Claim Form contains a section that must be completed by the attending physician. The completed claim form, with the physician's statement, should be forwarded to CDSPI. Once CDSPI verifies that the Claim Form is completed in full, it is passed on to the insurer for speedy processing.

Claim cheques are then issued approximately 25 days following the end of the applicable waiting period. The insurer will communicate directly with the participant if any further information is required. The process is that simple. Any questions about coverage or claim processing can be answered immediately by calling CDSPI's toll-free phone number.

CDSPI stands behind your Canadian Dentists' Insurance Program with unrivalled claim service.

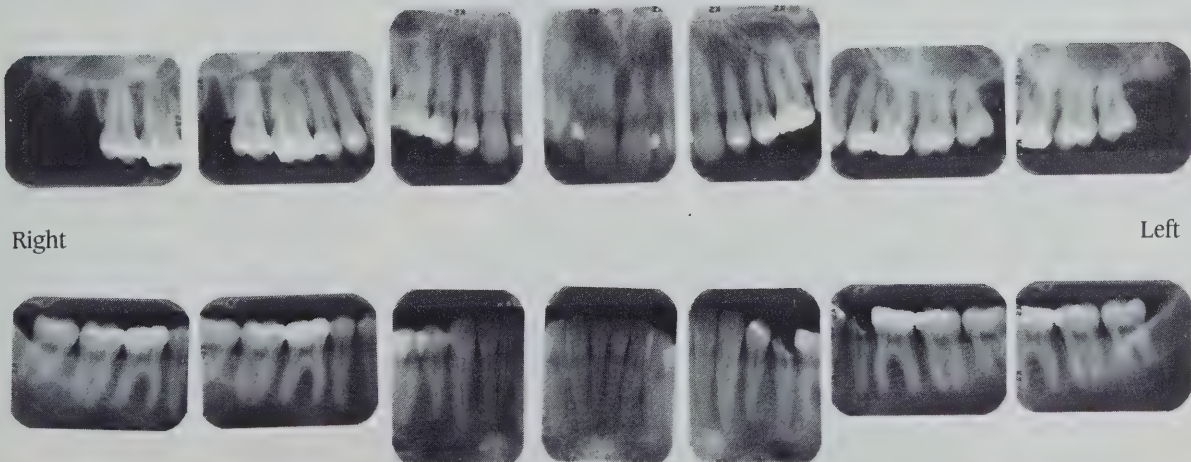
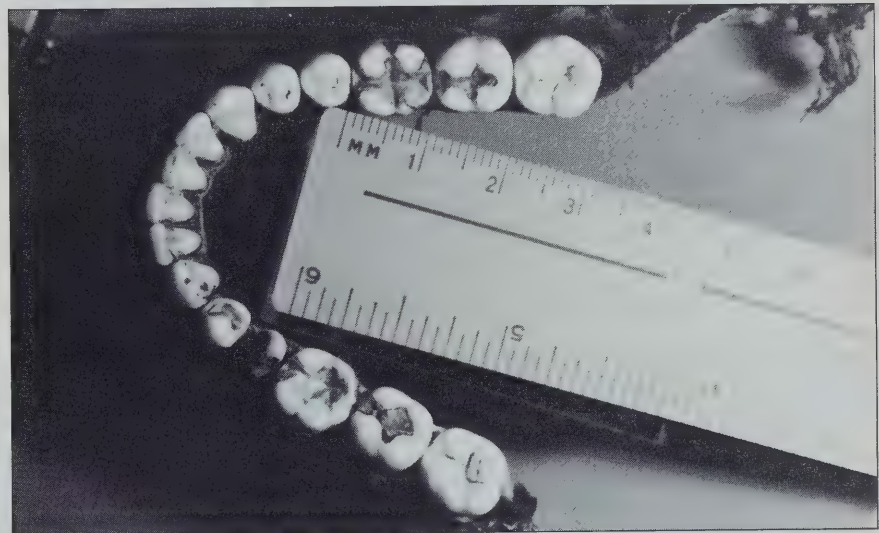
UNIDENTIFIED HUMAN REMAINS FOUND IN ALBERTA

On August 27, 1985, a human skull and two femurs were found near the Trans Canada Highway near Lake Louise, Alberta in Banff National Park. Dental records and local missing persons files have to date been of no assistance in identifying the remains. The Journal is publishing photographs of the two arches and a full mouth radiographic series in order to assist Alberta police in identifying the deceased.

According to Calgary RCMP, death may have occurred at least a year before the remains were found, but may have occurred as long as three years ago. Examination of the skull indicates death was from blunt force trauma and the investigation is being treated as a homicide.

The victim is believed to be a white male, approximately 23 years of age, but with a 20-30 years of age span possible. He has had extensive dental work. Teeth treated: 12, 14, 15, 16, 17, 22, 24, 25, 26, 27, 34, 36, 37, 46 and 47. No teeth are missing, but tooth no. 35 has been fractured but it may have occurred as a result of the blunt force trauma.

Information can be forwarded to:
Cpl. A.D. MacIntyre,
General Investigation Section,
Calgary RCMP Sub-Division,
920 16th Ave. N.E. Calgary, Alta.
T2E 1K9, 403-230-6442, referring to
file No. 85-CAL GIS-3815.



AD LIB

MEETINGS

by Cuspid

Most if not all professional societies and associations hold national meetings or conventions at which conventional — and, all too rarely, unconventional — wisdom is purveyed.

Having attended scores, perhaps hundreds, of such meetings as a reporter, I've concluded that there can be no purgatory in the hereafter for those who write and edit. It exists here and now, and most particularly in hotel conference rooms where drowsy audiences succumb to numbing illogic, tortured syntax and, in many instances, the slings and arrows of outrageous slide presentations.

Not that they all have to be like that. A recent international scientific convention I attended in London, England — and which attracted some 2,000 registrants — was run with military precision. One novel ideal at this meeting was that speakers were required to be brief and to the point. Chairmen of question and answer sessions seemed to have been chosen for their ability to nip in the bud any rambling or irrelevant questions, and to oversee the debate rigorously and even ruthlessly.

For dentists, such meetings are — or can be — especially valuable. . . since they afford them an opportunity to hear other people speak. That experience should be as painless as possible, with subjects chosen for their relevance. . . and those presenting them chosen for their expertise and for their ability to convey it. Didactic presentations, unless about the secrets of the universe, should be limited to 20 minutes, and slides should be professionally produced and presented, visible from all areas of the room and left on the screen long enough to be read. When the speaker has finished, members of the audience should be encouraged to rate the performance then and there rather than mutter darkly to one another as they file out for coffee that they didn't know what on earth the talk was about — or, worse still, that they had long known *everything* it was about. The quality of professional meetings will never improve so long as rambling, inaudible or boring speakers are accorded the same polite applause as are those whose words gladden the ear and stimulate the mind.

But do such postgraduate courses do any good? Like the curate's egg, they're probably good in parts. Certainly, no one would quarrel with their objective of keeping professionals up-to-date and improving patient care. But do they achieve this goal?

They probably do so only indirectly. For instance, the therapy for dentists who go to such courses and meetings must be tremendous: safely checked in to a large hotel, and preferably unreachable by telephone, they are insulated from the demands of patients and able to spend time with their colleagues. When they return to practice, they'll feel better — and patient care will presumably improve in some measure. But meantime what is learned in the scientific sessions? From my observations at scientific meetings few of those who turn up for the sessions take notes or tape record the proceedings.

Quite possibly, all that's needed is some market research into what kinds of postgraduate courses work. And once it's clearly established what people would like to learn about — let's give it to them. Audiences should then be asked afterwards what they liked, and what they learned, so that future courses can be planned accordingly.

Perhaps, too, in planning postgraduate courses we should get away from the idea that the dentist is always the captive audience to be talked at. Let's have more experience-sharing talks from dentists; at least the practitioner doing the talking would learn something, even if nobody else did.

After market research, postgraduate courses could do with something else — an element of fun. There's an earnestness about most of them; a feeling that the learning part is something to be got over as quickly as possible.

To give you an example of learning as fun from my own experience in communications, I get infinitely more enjoyment from being given a page of type and some pictures and told to design a magazine layout myself than I would from being lectured about it by an 'expert'. Similarly, in learning about the mysteries of television I'd rather work a TV camera than simply be told what panning and trucking mean.

What we might aim for is more participatory learning; more debate and discussion. In that way, perhaps postgraduate courses can become more useful and stimulating by turning audiences into active participants rather than passive listeners.

Of course, the value of scientific meetings is not only in the formal part of the proceedings. For many who attend them, the greatest value is to be found in the social areas where exchanges about matters of common professional interest are often more relevant and rewarding. It is in these so-called smoke-filled rooms that one can mingle with one's fellow craftsmen and learn — from the horse's mouth, so to speak — aspects of a common endeavour.

A Series on Dental Organizations in Canada THE NATIONAL DENTAL EXAMING BOARD OF CANADA

Third in a series on NDEB Inter-Relationships

The NDEB can not nor would it wish to carry on its programs in isolation from other professional agencies. It closely integrates its personnel and activities with a number of other dental organizations. These inter-relationships are conducive to good intra-professional communications and they greatly assist the NDEB in fulfilling its mandate. Two such relationships, one with the provincial licensing authorities and the other with the Council on Education and Accreditation of the CDA have already been briefly mentioned.

Provincial Licensing Authorities

The NDEB is in reality an extension of the ten provincial licensing authorities — each contributing one member. Every major policy decision that is made by the Board must carry the approval of the licensing authorities. The Board is autonomous only by virtue of the fact that it possesses a charter.

Council on Education and Accreditation

The remaining two NDEB members are appointed by the Council on Education and Accreditation of the CDA. The NDEB, on the other hand, appoints two members to sit on the Council. This cross representation keeps both groups aware of the related activities and problems of the other.

The area of greatest interaction between The Board and the Council is in connection with the Accreditation Program for Canadian dental schools. The Board appoints one working member to each survey team for undergraduate dental programs, thus providing The Board with first hand information regarding the accreditation process.

NDEB also is represented on three ad-hoc committees of Council. One committee planned a conference to explore the prelicensure concept of a period of mandatory supervised clinical experience to be inserted between graduation from a dentistry program and eligibility for licensing by the provincial licensing authorities. Another is studying the advantages and disadvantages of a national, voluntary and confidential self-assessment/education program. The objective is to have a pilot project in this regard underway later this year. The third committee dealt with the CDA/ADA reciprocity issue.

The CDA's Council on Student Affairs

Dental students as well as recent dental

graduates are either directly or indirectly affected by the NDEB programs. Since 1979 therefore, The Board has invited the CDA's Council on Student Affairs to appoint a student representative/observer to attend The Board's annual meetings. Once again the cross representation is fulfilled by The Board being invited to have a representative at the annual Canadian Dental Students' Conference.

Secretaries' Conference and Conference of Provincial Licensing Authorities

A good opportunity for exchange of information between the national and provincial executive directors, secretaries, registrars and The Board occurs as a result of the NDEB Registrar regularly attending the Annual meetings of both conferences.

Association of Canadian Faculties of Dentistry

Again because of many overlapping interests, an informal invitational inter-relationship exists between The Board and the ACFD.

Royal College of Dentists of Canada

Discussions concerning the possibility of a portability certificate for dental specialists in Canada began between the NDEB and RCDC in 1971. In 1973 the NDEB Act was amended, establishing the RCDC as the national examining facility for specialists and the NDEB as the national certifying authority.

Negotiations between the two organizations continued for another two years and resulted in the modification of the Part I RCDC examination. The alteration of the Part I examination consisted of the addition of an oral (viva voce) component and the orientation of the examination to test a candidate's clinical competence in his/her specialty. It was agreed that successful candidates in the modified Part I RCDC examination, would be eligible to receive The NDEB/RCDC specialty certificate which in turn would be recognized by the provincial licensing authorities. Negotiations between the RCDC and The Board are continuing in an effort to insure that only

competent candidates receive the Board's specialty certificate.

American Dental Association

The NDEB enjoys a friendly and cooperative arrangement with the American Dental Association through the Joint Commission on National Dental Examinations and its several working committees. Accreditation programs, licensure qualifications, examination methods and techniques, have problems and interests common to both sides of the border. Sharing the problems and experiences has been beneficial both ways.

Canadian Dental Association

In addition to the interrelated programs already referred to between the NDEB and the various councils and committees of the CDA, The Board reports annually to the CDA's Board of Governors.

The above list of organizational relationships, formal and otherwise, while not complete, illustrates the complex dependence and interdependence the NDEB shares with many other organizations within the dental profession.

HALIFAX

SITE OF THE CANADIAN DENTAL ASSOCIATION'S 1986 NATIONAL CONVENTION

Come to Halifax in 1986 and DISCOVER:

■ A first rate scientific program featuring renowned speakers on topics such as practice development, orthodontics, new restorative dentistry innovations and future trends in dental research.

■ A comprehensive dental trade exhibition showcasing the latest equipment and materials.

■ An update on AIDS, the Health Screening Program and Dental Manpower.

■ A unique and fully supervised children's

program.

■ An outstanding social program featuring good old fashioned hospitality, an opening night street party, a spectacular lobster bash and a regal President's Ball.

■ A new look at one of Canada's oldest cities: Halifax, a booming,

modern capital city that nicely combines the excitement of the new with the traditions of yesterday.

■ A warm and friendly vacation playground for all members of the family: parents and children alike.

So come to Halifax in

1986: enjoy an outstanding convention in the midst of old world traditions, while Looking to the Future.



AUGUST 24-27, 1986

Contact: Canadian Dental Association, 1815 Alta Vista Dr. Ottawa Ont. K1G 3Y6



CDA CONVENTION AUGUST 24-27 · HALIFAX '86

1986 CDA CONVENTION HOTEL RESERVATION FORM

IMPORTANT NOTES:

1. Hotel reservations will be confirmed upon receipt of your Convention Registration Form.
2. Room reservations will be held until 5:00 p.m. on day of arrival. To guarantee your reservation please fill in the required credit card information for Visa, Mastercard, and American Express. Cancellation notice must be given to the hotel at least 24 hours prior to date of arrival.
3. Deadline for Reservations: July 15, 1986.
4. Enquiries concerning accommodation or special requests should be directed to: Ms. Leslie Rich, Your Host Convention Service, P.O. Box 3594(S), Halifax, Nova Scotia, B3J 3J2, (902) 422-8336.

NAME:

(please print or type)

ADDRESS:

(Street)

(City)

(Prov.)

(Postal Code)

TELEPHONE NO.:

(Res.)

(Bus.)

Type of Room Required

☐ Single ☐ Double ☐ Twin ☐ Triple ☐ Other

Suites available upon request.

Arrival Date _____ Time _____ Departure Date _____

Name(s) of other occupant(s) if sharing _____

Indicate first **THREE** (3) Hotel Choices (Rates indicated single/double)

- | | |
|--|--|
| ☐ Halifax Sheraton (CDA Headquarters)
(\$95/\$105) | ☐ Citadel Inn (CDHA & CDAA Headquarters)
(\$75/\$85) |
| ☐ Prince George Hotel
(\$80/\$90) | ☐ Holiday Inn
(\$65/\$71) |
| ☐ Delta Barrington
(\$79/\$91) | ☐ Nova Scotian
(\$68/\$68) |
| ☐ Chateau Halifax
(\$75/\$85) | |

Reservation Guarantee:

Name of Credit Card

Number

Expiry Date

Please Check Appropriate Designation

- | | |
|---|---|
| ☐ Dentist | ☐ Specialist _____
(Please list speciality group) |
| ☐ Hygienist | ☐ Student |
| ☐ Assistant/Office Personnel | ☐ Technician |
| ☐ Other _____ | (Please specify) |

Please send reservation form to:

Ms. Leslie Rich
Your Host Convention Service
P.O. Box 3594(S)
Halifax, Nova Scotia
B3J 3J2

1986

CDA NATIONAL CONVENTION

AUGUST 24-27

HALIFAX, NOVA SCOTIA

REGISTRATION FORM

Name: Miss/Mrs/Ms _____
Dr/Mr _____ (please print for name tags)

Address: _____

City _____ Prov _____ Postal Code _____

Telephone No.: _____

Name of Spouse, if registered: _____

Name and Age of Children, if registered (see below)

Name _____ Date of Birth _____

CDA PRE-CONVENTION SOCIAL EVENT Totals
SATURDAY, AUGUST 23, 1986
Harbour Sail: Hosted by local area Dentist/Sailors
Limited registration

\$20.00 per person _____

CONVENTION REGISTRATION

AUGUST 24-27, 1986

NOTE: Early registration will help in securing the hotel reservation of your choice. It can also mean savings in air fare, so make your plans early.

Please complete appropriate category

☐ **DENTIST:** General Practitioner _____ (Specialty Group)
Specialist _____

☐ CDA MEMBER/Foreign Dentist to June 15 after June 15

\$325.00 \$375.00

☐ Non-Member \$375.00 \$425.00

*Includes access to scientific sessions and exhibits, opening breakfast, two lunches, Sunday evening registration party and Tuesday evening Lobster Bash, daily exercise program - aerobics/running.

☐ **DENTAL SPOUSE** \$140.00 (each)

*Includes access to scientific sessions and exhibits, Sunday evening registration party, Monday Fashion Show and Lunch, Tuesday Tour, and Tuesday evening Lobster Bash, Halifax walking tour, Wednesday morning Seminars, daily exercise program - aerobics/running seminars.

Indicate Tour Preference: South Shore _____
Annapolis Valley _____

☐ **CHILDREN** \$60.00 (Each)

Ages 7-15 inclusive

Deadline Date: June 15 - Limited registration

Includes a sports day, Citadel tour and lunch, double decker bus tour of Halifax, magic show, films.

☐ **HYGIENIST** to June 15 after June 15

☐ Full registration

☐ CDHA Member \$125.00 \$150.00

☐ Non-Member \$250.00 \$300.00

*Includes access to scientific sessions and exhibits, daily aerobics, Sunday Harbour Cruise (pre-registrants only), Sunday registration party, Monday opening breakfast, Monday CDHA President's luncheon and Citadel Hill candlelight tour, Tuesday Lobster Bash, Wednesday brunch and learn.

☐ **Daily Registration** to June 15 after June 15

☐ CDHA Member \$ 55.00 \$ 65.00

☐ Non-Member \$110.00 \$130.00

Day(s) required _____

*Includes that day's scientific sessions and exhibits only.

☐ **CDHA SPOUSE/GUEST** \$60.00

*Includes access to scientific sessions and exhibits, Sunday Harbour Cruise (pre-registration only), Sunday registration party, Monday CDHA luncheon and Monday evening "Candlelight Tour of the Citadel".

☐ **DENTAL ASSISTANT/OFFICE PERSONNEL**

☐ Full Registration to June 15 after June 15

☐ CDAA Member \$125.00 \$145.00

☐ Non-Member \$155.00 \$175.00

*Includes access to scientific sessions and exhibits, daily aerobics, Sunday registration party, Monday President's Luncheon, Tuesday Fashion Show and Luncheon, Wednesday Breakfast and Harbour Tour.

☐ **CDAA DAILY REGISTRATION**

☐ CDAA Member \$55.00

☐ Non-Member \$65.00

*Includes that day's scientific sessions and exhibits only.

☐ **CDAA SPOUSE/GUEST** \$50.00

*Includes access to exhibits, and Sunday evening registration party.

☐ **STUDENTS**

- ☐ Dental
☐ Hygiene

Complimentary
Complimentary

**Includes scientific sessions and exhibits only.*

☐ **TECHNICIAN/OTHER**

to June 15 after June 15

Please specify _____

\$ 50.00 \$100.00 _____

**Includes scientific sessions and exhibits, and Sunday evening reception.*

ADDITIONAL SOCIAL TICKETS

Sunday Evening Registration Party \$35.00 per person _____
Monday Opening Breakfast \$12.00 per person _____
*Monday President's Ball \$50.00 per person _____

Monday's Walk About Lunch \$ 8.00 per person _____
Tuesday President's Lunch \$25.00 per person _____
Tuesday Night's Lobster Bash \$45.00 per person _____
CDA Spouses' Fashion Show and Lunch \$30.00 per person _____
Valley Tour \$35.00 per person _____
South Shore Tour \$35.00 per person _____
CDHA Monday Candlelight Citadel Tour \$10.00 per person _____
CDHA Wednesday Brunch and Learn \$20.00 per person _____

TOTAL AMOUNT OF CHEQUE ENCLOSED: _____

**Not included in registration package*

CANCELLATION POLICY: Cancellations are accepted in writing before July 15, 1986, for a full refund. Requests after that date are subject to a 25% administrative charge.

**Note: Please duplicate and complete this form if more than one registration is required*

Make cheque payable to the CANADIAN DENTAL ASSOCIATION, and mail to:

1986 CDA Convention
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Do You Think You Have Arthritis?

If you think you do, you're in good company. More than three million other Canadians have it too. For the facts about arthritis, arthritis research and treatment programs, contact the office of The Arthritis Society nearest you. It's listed in your phone book.



THE ARTHRITIS SOCIETY

Briefly

The new Liberal administration in Prince Edward Island, led by new Premier Joe Ghiz, has promised to restore dental care cut in the Children's Dental Care Program of the Department of Health and Social Services, by the previous government in 1983. At that time, free dental care for children was reduced to those aged four through 12.

The Speech from the Throne promised that free care will be restored for the 15 to 16-year-olds, sometime this year, and in 1987, to the 13 and 14-year-olds.

Dr. Brian Barrett, Secretary-Treasurer/Registrar of the Dental Association of Prince Edward Island, told JCDA his Association had done "quite a bit of lobbying" particularly during the election campaign last spring.

The New Brunswick Dental Society has drafted a new set of by-laws, which will, among other matters, pave the way for incorporation of dental practices within that Province.

The Society also played a role in revisions to that provincial Denturists' Act, recently passed by the provincial legislature. One of the major changes from the original Act is that the clause referring to partial dentures has now been dropped.

The original Denturists' Act was one copied from another province and required updating to make it a "responsible" piece of legislation. It now incorporates a mechanism for discipline and complaints procedures.

Provincial and federal governments in the United States and Canada continue to look at health benefits provided either through company plans or as government agency services as another source of tax revenue.

Although the concept has been shot down in both Canada and the United States at the federal level it keeps popping up at other levels.

In the Province of Québec, the Bourassa Government has been the most recent entry into this fray, announcing in the spring it would tax the dental services for children from infancy to 15 years of age.

The parents of the children receiving the services were to pay the tax on the services received by their children.

However, strong public protest on the part of l'Ordre des dentistes du Québec, various

consumer groups and more than 100,000 signatures from Québec taxpayers, have been effective in killing this proposal.

However, the Québec Government maintains it will conduct an economy drive in another manner. It has announced a cut of \$8 million in dental services presently being provided to the children of the Province.

When the proposed tax on services was announced, the government had also planned to cut back the services to save \$6 million.

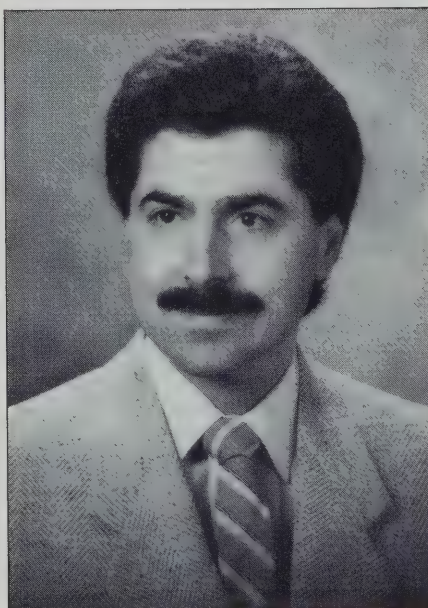
Sharon Robinson, a dental assistant to Dr. C.S. Tuck of Brampton, Ontario, was the grand prize winner in Degussa Canada Ltd.'s gold wafer contest at the ODA annual meeting in May.

Ms. Robinson, won a one-ounce wafer of Degussa 999.9 per cent gold. Twenty-five other delegates to the Ontario Dental Association meeting each won one-gram 999.9 per cent gold wafers.

Degussa is currently the largest manufacturer and distributor of precious dental alloys in the world.

The Alpha Omega Mount Royal Dental Society recently elected a new slate of officers for 1986-87.

Dr. Marvin H. Steinberg, a Montreal orthodontist, is the new President. Dr. Steinberg, who is a member of the CDA,



Dr. Marvin H. Steinberg

has also been active in a number of community activities for several years. He received his DDS from McGill University in 1972, and took his orthodontic specialty training at Boston University Graduate School of Dentistry.

Other officers elected by the Society, include Vice President Dr. William Steinman, Corresponding Secretary, Dr. Michael Tenenbaum, and Recording Secretary Dr. Sam Israelovich. Dr. Marvin Werbit is the Society's Treasurer, while Associate Treasurer is Dr. Mel Schwartz. Editor and Regent are Drs. Howard Katz and Saul Levine, respectively.

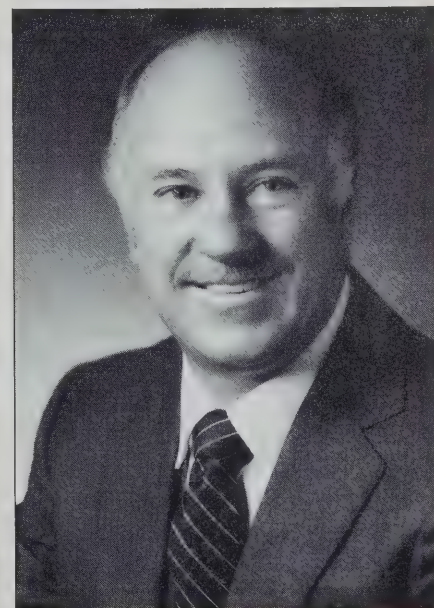
The Canadian Speech and Hearing Association recently announced that it has undergone a change of name.

Now called The Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA), the Association will still maintain its present national headquarters.

For more information, contact: CALSPA, 311-44 Eglinton Ave. West, Toronto, Ontario, M4R 1A1.

The Dental Industry Association of Canada (DIAC) recently elected Robert Cajolet as the new President.

Mr. Cajolet is chairman of Totec Group Inc. of Montreal and President of Canada Dental Inc. He has been active in the dental industry since 1963.



Robert Cajolet

Along with Mr. Cajolet, members of DIAC's Board of Directors include Stewart Cannon, Gladys Fisher, Bill Fotty, Garry Jarvis, Erla Kay, George Osterbauer, Norman Senecal and Dean Swift.

A new Working Group is being formed by the Federation Dentaire Internationale (FDI) to study ways of treating elderly patients.

The Working Group, which will be under the Commissions of Dental Education and Practice and Oral Health, Research and Epidemiology, will study topics such as the administration and delivery of dental care to an aging population.

The Working Group will identify age-related factors that make it difficult for the aged to seek and obtain dental care. The new Group will also study medical disabilities and drugs, root caries, periodontal disease and degrees of tooth loss and age-related psychological barriers against seeking dental care.

The Group will also investigate domiciliary dental care and hygienic aspects of dental care delivered outside the dental office.

The **Fédération Dentaire Internationale (FDI)** is undertaking two new studies.

One, to study the effects of drugs used in dental practice on flying and diving personnel, is being carried out by the Commission on Defense Forces Dental Services. Some drugs currently in use in dental practice effect the ability to fly or dive and the Commission will make recommendations concerning side-effects or hazards. The recommendations would indicate the time that should elapse after taking certain medicines before flying or diving. The Commission's findings are expected to affect not only the armed forces, but the business flyer and the leisure pilot or diver as well.

Another, unrelated study is also being undertaken by the FDI. The FDI Commission on Oral Health, Research and Epidemiology will study the causes of and inter-country variations of tooth loss. Existing research will be examined initially, and control studies will eventually be undertaken in some countries.

Dr. Jean Jardiné, Past-President of the FDI, has been honored by his own country (France) with his promotion to the rank of Officer in the Legion of Honour (Officier dans l'Ordre National de la Légion d'Honneur).

In addition to his distinctions within the Fédération Dentaire Internationale, Dr. Jardiné is Honorary President of the Confédération Nationale des Syndicats Dentaires of the Bas-Rhin. He has had a distin-



Dr. Jean Jardiné

guished career both in France and internationally, including holding the post of Président Confédéral between 1964 and 1978.

Dentists who may have earlier displayed some notable (or even mediocre?) hockey prowess and are still able to stickhandle are beginning to plan a Dental Hockey Tournament in Las Vegas, on November 6 to 9, next.

Joey Brown of Calgary, who is making the

arrangements, is hoping that a minimum of two teams from Saskatchewan and four from Alberta, can be organized to compete in this event.

To help heal the hockey scars, the package is expected to also include golf, hearty breakfasts, a banquet and three nights accommodation.

It would appear that good face masks and mouthguards would be in order.

The **Canadian Dental Assistants' Association** has set up a scholarship fund to honor the memory of one of its most distinguished members, Penny Waite.

The late Penny Waite was the driving force behind the establishment of education and certification for dental assistants in this country. She served the Association in many different capacities including President and Chairman of the Council on Certification. She was also active in Western Canada Dental Assistants' Association and the Saskatchewan Dental Nurses and Assistants' Association. She was an Honorary Member of the Saskatoon, Saskatchewan, and the Canadian Dental Assistants' Association.

Donations to the fund will be welcomed and should be sent to:

Penny Waite Memorial Scholarship Fund, Canadian Dental Assistants' Association, c/o Elaine Wesley, Executive Director, 204, 542-7 St. South, Lethbridge, Alberta, T1J 2H1

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	June 27, 1986	May 30, 1986
Fixed Income Fund	52.68453	51.83559
Common Stock Fund	120.83404	120.17464
Money Market Fund	35.07390	34.85591
Balanced Fund	22.35985	22.14624

Interest rates:

Guaranteed Fund

Term	*Interest rates as at	
	June 27, 1986	May 30, 1986
1 yr	8.70%	8.75%
2 yr	8.90%	8.85%
3 yr	9.40%	9.05%
4 yr	9.55%	9.05%
5 yr	10.10%	9.50%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

	June 27, 1986	May 30, 1986
	\$61,828,988	\$60,992,436

For further information:

Write: Canadian Dental Service Plans Inc.
Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada and Ontario Area Code 807 only	1-800-268-5418
Quebec and Ontario, (except Area Code 807)	1-800-268-3411
Metro Toronto Area	497-7117

DENTAL AWARENESS PROGRAM UPDATE

Media Report: Print Coverage up 1000 Per Cent

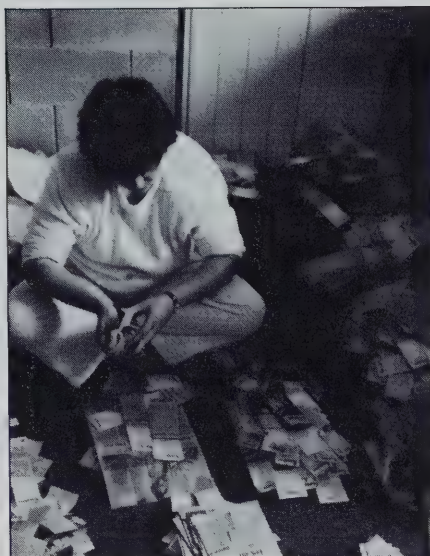
Dental health is definitely becoming a more prominent issue thanks to DAP's media relations activities and to the work of organized dentistry at all levels. This year DAP's media department has added to its central push for national coverage by providing local dental societies with adaptable background materials and encouraging them to develop local spokespeople. And the strategy is working. The response so far has been unprecedented — and results are still coming in:

- **Print** — Our clipping service reported over 1400 newspaper articles generated in and around Dental Health Month alone — up more than four times from last year, and up ten times from pre-DAP days in 1984. Of these, nearly 500 specifically mentioned Dental Health Month — compared to last year's count of roughly 300 articles on all dental subjects. *Good For Life* stinger ads are appearing not only in newspapers, but in a variety of government, employee, and association publications. Any way you look at it, the increase is phenomenal.

- **Broadcast** — Between March and May 1986, our monitoring service reported 35 radio and television broadcasts. That's in two short months — compared to thirteen broadcasts in the preceding eight months. And since our service is limited primarily to Ottawa and Toronto, that figure doesn't even include regional broadcasts! Hot topics include periodontal disease, fluoridation, and cosmetic dentistry; DAP's public-service radio announcement is also getting extensive pickup.

One spectacularly successful example: a television segment sponsored by Oral-B Laboratories, in which CDA president Dr. Brad Holmes discusses the prevalence and prevention of dental disease — and demonstrates brushing and flossing on a giant plastic jaw. In its first month, it was aired on twenty-seven stations from Corner Brook to Dawson Creek, reaching over a million Canadians.

More and more, aggressive media relations is proving to be a very effective, low-cost way of getting the *Good for Life* message out.



Clip joint: Media consultant Andrea Donderi is floored by the flood of articles from DAP's press clipping service.

Dental Health for Seniors: A Pilot Project

"What a difference a little care makes." That's the theme of the program piloted in Toronto this summer: a week-long, all-out push to promote dental health to urban seniors. Launched June 23 with a \$20,000 commitment from the City of Toronto Department of Public Health, the program rallied support from Oral-B and Shoppers' Drug Mart, generated extensive media coverage, introduced an exciting new series of resource materials on topics of special interest to seniors, and established badly-needed permanent services. The program involved:

- A week of displays, activities, and special events at City Hall. Some highlights: an exchange of tooth and denture brushes, a visit from a mobile dental unit, free dental examinations, fact sheets, and advice.
- A fifteen-minute video, featuring a lively, good-natured panel of seniors discussing their own experiences and the changing face of dental care.
- A new series of illustrated dental health fact sheets. Four, set in large, easy-to-read type, deal with topics that specifically concern seniors. Another, *Helping Others to*

Dental Health, offers advice on helping disabled patients or relatives care for their mouths.

- An ongoing dental information and referral service, offered in conjunction with an existing seniors' telephone information line operated by the Ontario Ministry of Community and Social Services. In response to requests, volunteers at the Senior's Line can now send dental fact sheets to callers' homes — and provide referrals to a network of participating dentists.

This dynamic program is working for seniors in Toronto — but that's not all. "Now that we know what works," says DAP consultant Eric Young, "we can put together a planning and resource kit so that dental and public-health organizations can run similar programs right across Canada." The seniors' program represents a practical, positive step toward solving the urgent problem of dental health for Canadian seniors.

Kudos for Kit: Alberta Health Units

Public health units play an important role in community dental awareness programming. They're also major users of DAP's Dental Health Month planning kits. Anne Bogowich, dental health consultant to Alberta's Department of Social Services and Community Health, surveyed the province's twenty-five public health units on how the kits worked for them. Twenty-three replied — and we're delighted to report that the response was overwhelmingly positive.

Bogowich congratulates DAP on "a valuable and effective planning kit". Individual health units described the kit as "very well organized"; "appropriate and precise"; "easy access to good information." Favourite sections: the photocopyable fact sheets, the activity planners, and the camera-ready stinger ads (used by 70 per cent and described as "light and to the point"). And the media relations advice resulted in an amazing total of five radio and 10 television interviews.

It's encouraging news that Alberta's public health network has rated DAP's resources so highly. DAP appreciates public health's vigorous commitment to dental awareness programming in Canada.

For easier, faster
office work,
twice a year...

We help them
with their homework,
twice a day.



Introducing new Colgate Mint Toothpaste.
It not only reduces tooth decay, it helps inhibit
supragingival calculus buildup between prophylaxes.^{1,2}

Two important benefits in one new formula.

Colgate has developed a new cavity-fighting fluoride formula dentifrice which also contains a soluble pyrophosphate. This safe, non-abrasive ingredient interferes with the build-up of supragingival calculus. Clinical trials^{1,2} have shown a 35.5% and 44.2% reduction in calculus formation in patients tested. The practical results of such significant calculus reductions are obvious at subsequent appointments: easier prophylaxes for both you and your patients.

Colgate Mint Toothpaste is an important advance in oral hygiene for patients who require calculus removal. Patients who develop hard, unsightly calculus will benefit from your recommendation to use Colgate Mint Toothpaste, in the gold box. They should begin to use it immediately following your scaling procedure, to enable the formula to work on freshly cleaned tooth surfaces. Of course those patients in whom calculus is not a problem will continue to benefit from regular use of Colgate's Regular, Winterfresh, or Gel flavours.



One more step to better oral hygiene for your patients.



"Colgate Toothpaste contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." Canadian Dental Association.

1. Schiff, T.G.: "The effect on calculus deposits of a dentifrice containing soluble pyrophosphate and sodium fluoride: a three month clinical study" *J. Clin. Prev. Dent.*, (June, 1986).
2. Lobene, R.R.: "A clinical study of the anti-calculus effect of a dentifrice containing soluble pyrophosphate" *J. Clin. Prev. Dent.*, (June, 1986).

Resource Centre de documentation

INFECTION CONTROL IN THE DENTAL OFFICE

LA RÉDUCTION DES DANGERS DE CONTAMINATION AU CABINET DENTAIRE

1. Bebermeyer, R.D. *Aseptic procedures for the dental office*. General Dentistry, v. 32, no. 4, July-August 1984, pp. 312-315.

2. Crawford, J.J. *State-of-the-art: practical infection control in dentistry*. Journal of the American Dental Association, v. 110, no. 4, April 1985, pp. 629-633.

Abstract

Practical infection control in the operatory is a multi-step process. Protocol should be updated to include good: identification of high-risk patient populations, barrier technique, aseptic technique, surface disinfection, instrument sterilization, and equipment disinfection and sterilization.

3. Dentists found at small risk to AIDS: LA task force. American Journal of Orthodontics, v. 89, no. 1, January 1986, pp. 79-82.

4. Deschamps, M. and Hervet, D. *Hygiène et aseptie au cabinet dentaire*. L'information dentaire, v. 67, no. 37, October 24, 1985, pp. 3901-3912.

5. Fast, T.B. and Stout, F.W. *Dental office sterilization: a review with respect for herpes, viral hepatitis and AIDS viruses*. Florida Dental Journal, v. 56, no. 4, Winter 1985, pp. 14-15.

6. Greenlee, J.S. *Review of currently recommended aseptic procedure. III. Radiographic equipment and dental professional preparation*. Dental Hygiene, v. 58, no. 2, February 1984, pp. 74-77.

7. Holt, R.A., Stratton, R.J. and Donoghue, T. *Prevention and cross-contamination during immediate denture delivery*. Quintessence International, v. 16, no. 11, November 1985, pp. 787-789.

8. *Infection control in the dental office and laboratory*. Dental Abstracts, v. 30, no. 4, April 1985, pp. 220-223.

9. Jones, G.A. *Intraoral x-ray film holders and infection control in U.S. dental schools*. Journal of Dental Education, v. 49, no. 9, September 1985, pp. 656-657.

10. Kelly, J.R. and Cohen, M.E. *Injectable debris associated with dental anesthetic*

delivery. Journal of the American Dental Association, v. 108, no. 4, April 1984, pp. 621-624.

Abstract

Injectable foreign matter may originate in part from: anesthetic cartridge diaphragm surfaces, diaphragm polymer materials, and debris in the lumen of sterile, manufacturer-sealed needles. Particles ranging from 30 to 305 microns were collected from four brands of dental anesthetic cartridges (320 cartridges/brand). Results of this study suggest that rubber and aluminum debris may commonly be injected with anesthetic solutions. Debris on the outer surface of the needle may also be drawn into injection sites. Possible health implications of injectable matter are discussed and remain conjectural.

11. Martin, M.V. and Bartzokas, C.A. *The boiling of instruments in general dental practice: a misnomer for sterilization*. British Dental Journal, v. 159, no. 1, July 6, 1985, pp. 8-20.

12. Merchant, V.A. and others. *Preliminary investigation of a method for disinfection of dental impressions*. Journal of Prosthetic Dentistry, v. 52, no. 6, December 1984, pp. 877-879.

13. Miner, G. *Dental equipment maintenance in today's modern office*. New York State Dental Journal, v. 50, no. 10, December 1984, pp. 665-667.

14. Palenik, C.J. *Suggestions for improving the performance of the dental office sterilizer*. Journal of the Indiana Dental Association, v. 63, no. 6, November-December 1984, pp. 29 and 31.

15. Reingold, A.L., Kane, M.A. and Hightower, A.W. *Disinfection procedures and infection control in the outpatient oral surgery practice*. Journal of Oral and Maxillofacial Surgery, v. 42, no. 9, September 1984, pp. 568-572.

16. Rohrer, M.D. and Bulard, R.A. *Microwave sterilization*. Journal of the American Dental Association, v. 110, no. 2, February 1985, pp. 194-198.

17. Rudd, R.W. and others. *Sterilization of complete dentures with sodium hypochlorite*. Journal of Prosthetic Dentistry, v. 51, no. 3, March 1984, pp. 318-321.

Abstract:

It is important to give the patient a denture that is clean and free from cross-contamination. This study was made to determine

if chlorox could be used as a rapid, safe, and clinically effective way to sterilize complete dentures. The data obtained from this study indicate that a 5-minute immersion of dentures in undiluted chlorox accomplished sterilization against a variety of microorganisms, including a spore-forming bacteria and *C. albicans*.

18. Woods, R. *Prevention of transmission of hepatitis B in dental practice*. International Dental Journal, v. 34, no. 2, June 1984, pp. 122-126.

19. Young, S.K. and others. *Microwave sterilization of nitrous oxide nasal hoods contaminated with virus*. Oral Surgery, Oral Medicine, Oral Pathology, v. 60, no. 6, December 1985, pp. 581-585.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS, a computerized information retrieval system for the Health Sciences field, which has been operational in the library since February 1982, and is at the disposal of all members.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS, un système informatisé de recherche bibliographiques pour les sciences de la santé. Ajouté à la bibliothèque en février 1982, ce système est à la disposition de tous les membres.

LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisition is available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

1. Pindborg, J.J. *Atlas of Diseases of the Oral Mucosa*. Toronto: W.B. Saunders Company, 1985. 1 copy. 357p.

Book Reviews

GOOD MOUTHKEEPING — A PARENT'S GUIDE TO DENTAL CARE

By John Besford

Oxford University Press, 1984
Toronto, Ontario
Price: \$9.95
Pages: 191

In this book, written for the lay public, the author has achieved his stated objective of explaining the etiology of, and methods of preventing and arresting dental disease. He has accomplished this in a clear, concise, very readable and motivational fashion.

While it might be argued that this book "preaches to the converted" I feel that it would hold the interest of, and be very effective in reaching, even the individual who may, at the outset, be only marginally interested in the topic.

The key to the success of the book lies in its clear, factual, non threatening, instructional and motivational format. In this book, written in two parts, the author demonstrates the desirability, relative ease, methodology and feasibility of the elimination of dental disease (both caries and elimination of periodontal disease) for the adult and child.

In the 12 short, illustrated chapters of part I the author deals with the usual etiological and preventative factors of dental disease. In addition however, he has included and elaborated on topics selected to increase the level of public awareness of some more subtle and often overlooked or misunderstood areas. "Hidden" sugars, product label reading, alternative sweeteners, behavior modification and common dental myths are well handled. The author clearly transmits the message of the importance of a conscious effort by the patient and patient responsibility for their own oral health. He presents the information, demonstrates the relative ease of acting on that information and asks the patient to decide if the rewards, on an individual basis, justify the effort.

The author has handled the notoriously difficult task of demonstrating on paper proper oral hygiene techniques very well, and in such a manner as to be highly motivational. The merits of various oral hygiene aids, toothpastes and home fluoridation supplements, both systemic and topical, are fully discussed.

The importance of the support of the den-

tist in diagnosis, treatment, patient education, and current professional prevention techniques is stressed. Motivational and self instructional questions are posed to the reader, very effectively, at the end of major chapter sections.

In Part II, which the author refers to as an "Information Package" there are several very worthwhile inclusions. Recommendations for further reading, a good question and answer summary, sugar content of many foods and medications, a brief glossary of dental terminology and dental personnel are included.

This book, well written for the lay public, would approximately be recommended by medical and dental professionals to their patients.

*This book was reviewed by
Dr. Bob Brandon,
Assistant Professor,
Division of Community Dentistry,
University of Western Ontario.*

MAXILLOFACIAL ORTHOPEDICS: A CLINICAL APPROACH FOR THE GROWING CHILD

Dr. John Witzig

Quintessence Publishing Co.
Chicago, Ill.
328 pages

One always approaches with great interest, texts or publications from this publisher, because of their previous history of quality productions. With this text written primarily by pedodontists and forwarded by John Witzig, perhaps more interest would be generated in the dental profession. The authors have tried to present their approach to resolving a spectrum of malocclusions with primary focus on removable or functional appliances.

The sequencing of their text is logical with a brief historical explanation of the evolution of orthodontic philosophy and treatment. The chapter on "Biologic Shaping of the Craniofacial Complex", ie. growth and development, is a review of the basics of bone growth and the theories of facial growth are undertaken. There are, however, inconsistencies in their descriptions in that much emphasis is placed on the "functional matrices" theories of Moss (1972) and Van der Klaaw (1948), yet, also in the chapter, the authors report that "as

new bone is added to the sutural contact surfaces, the bones are displaced away from each other." The second part of the text on "Evaluation" goes through the series of examination and diagnosis with emphasis on cephalometrics for skeletal, dental and soft tissue analysis.

The chapter on "Postural and Nutritional Considerations" was interesting but very basic. These factors are being recognized and acknowledged by many clinicians now and more detail on postural considerations would have been appreciated by the reader. However, if these sections were presented by a physiotherapist on posture, and a pediatrician with a background in nutrition, they would have more credibility.

The chapter on "Treatment Planning" presents the author's philosophies for correction of malocclusions, dealing with crossbites, crowding and antero-posterior problems. The authors stress the advantages of orthopedic appliances and second molar extractions and make references to the significant advantages of such versus premolar extractions and fixed appliances.

The third part of this text deals with treatment of Angle Class I, II and III malocclusions. This reviewer was most disappointed at these chapters for a number of reasons. Chapters amply illustrated with a series of different malocclusions and facial types and the reasoning for deciding to undertake functional orthopaedic correction, rather than alternative approaches, would have been more helpful.

In the earlier chapter on diagnosis, the authors presented a detailed section on cephalometrics, yet of the few cases presented in these chapters, *only one of the five representative patients treated with orthopaedic appliances*, had headfilms to help the reader elicit diagnostic information or assess treatment changes. As well, long term follow up records of these patients would have been nice, to see how stable their treatment results were. The clinical approaches of orthopaedic appliances selection and adjustment is very limited. As well, the authors refer to studies that state that only about one quarter of all Class II malocclusions are due to maxillary prognathism (McNamara, 1981), yet the authors do not present any treatment solutions for these problem cases. Certainly they cannot ignore the well documented research or clinical papers on orthopaedic alteration of the maxilla by extraoral forces with or without functional appliances.

The final section of treatment with orthopaedic appliances deals with TMJ disorders, extractions and "special problems." The chapter on TMJ presents a basic but illustrated assessment of head and neck muscles and TMJ evaluation. The various types of TMJ radiography are well explained. Treatment modalities with anterior repositioning appliances or opening the bite with orthopaedic appliances are discussed. Only two case histories are presented and both case histories showed "improvement" of patient's skeletal and dental problems after ten months, however, no long term follow up was shown. This does not constitute successful treatment in the assessment of this reader.

The chapter on "Extraction for Treatment of Malocclusion", discusses only selected removal of deciduous teeth for midline correction or severe incisor crowding. The section on extractions of permanent teeth predictably presents the worst of premolar versus the best of second molar extractions. The two cases of second molar extraction are illustrated only by panoramic radiographs. The reader would appreciate for diagnostic purposes and treatment analysis, pre and post-treatment models, photographs, headfilms, etc. The case for optimal aesthetics and TMJ function with second molar extractions alone is naive to those who perform all phases of orthodontics and orthopaedics and TMJ therapy. Identification of all bicuspid extractions, as a major cause of TMJ problems without delineating the correct diagnostic criteria for extraction therapy decisions, is misleading.

The quality of photographs and illustrations are generally good, however, a few illustrations were noted to have mistakes. For example, to those who do not use or who are not familiar with edgewise appliances, one should note the mislabelling between the straight wire & Standard edgewise appliances. (Fig. 7-12a, Page 171).

Some of the diagrams shown in the chapter on growth and development are misleading (Fig. 2-16, page 45) also, and would be challenged by many clinicians and researchers. Growth of the face simply does not occur as presented here.

This textbook may provide some insights into some of the philosophies in the use of functional appliances, however, the limited selection of cases and limited types of appliances leads one to question the usefulness of this text.

Perhaps a more appropriate title for this text would have dealt with the specifics of sagittal and bionator appliances therapy. This text would not serve the orthodontist who employs functional appliances as a treatment adjunct in his practice. Perhaps it would be best only as a basic primer for

those who are just interested in light reading on a cold winter's evening.

The reviewer suggests you save your money.

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Moss, M.L. The regulation of skeletal growth. In R.G. Goss (ed.) Regulation of Organ and Tissue Growth. New York: Academic Press, 1972.

Van der Klaaw, C.J. size and position of the functional components of the skull. Arch. Neurol. Zool. 91-176, 1948
McNamara, J.A., Jr. Components of Class II malocclusion in children 8-10 yrs. of age. Angle Orthodontics: 51: 177-202, 1981.

*This book was reviewed by
Dr. Terry Carlyle,
an orthodontist in Edmonton, Alberta
who is actively involved with orthopaedics,
orthodontics and TMJ therapy.*

COMPLETE DENTURE PROSTHETICS A clinical and laboratory Manual

D.J. Neill, DFC, MDS, FDS,
RCS (Eng)

R.I. Nairn, MSc, BDS, FDS,
RCS (Eng)

*Second Edition
Wright, PSG
Bristol - London - Boston
1983, 172 pages
Price: \$16.00 U.S.*

This small manual, (172 pages), now in its second edition, reaffirms the adage that "good things come in small packages". It is a useful, understandable book which is well written, hence easily readable and excellently illustrated. Its primary orientation is the student of dentistry or dental technology but it appears to be an excellent review manual even for seasoned practitioners.

Those seeking a definitive tome will be disappointed in this book. It clearly was created as a clinical guide and gives no shrift to esoterica in prosthodontics; rather, it presents clinical procedures as they evolved from lecture notes seasoned in the teaching dental clinic.

This reviewer's only disappointment was the diagnostic chapter which seemed only adequate. Recognizing that this topic can be the subject of yet another text, perhaps this is not a real criticism. Any reader should see this manual as one that "fits in" and gives many useful insights and practical guidance.

*This book was reviewed by
Dr. John B. Houston,
a Prosthodontist in Toronto, Ontario.*

DISINFECTION, STERILIZATION AND PRESERVATION

Edited by Seymour S. Block

*Lea & Febiger, Philadelphia, 1983.
1053 pp., \$109.50 (Canadian).*

This is the third edition of a book on antiseptics, disinfectants, and sterilization that was first published in 1968. The second edition appeared in 1977. For all this time, this book has served as a standard reference work for any professional involved in some way with disinfection, sterilization and preservation procedures. For such individuals, the appearance of the third edition in 1983 was both a welcome and timely event since a revision was much needed. This new edition is completely reorganized and enlarged in its coverage of microbial control in health and related fields.

The editor took on the onerous task of covering such a wide field; but he has succeeded in welding together a cohesive volume containing a wealth of information on the areas of disinfection, sterilization and preservation. Also, the text is generally free of typographical and other errors; this bears irrefutable testimony to the painstaking hours (and months) spent by the editor toothcombing through the many manuscripts submitted. However, one criticism could be raised: the chapters "Historical Review" and "Definition of Terms" should be placed before all others instead of being buried in chapter numbers 43 and 44, respectively. This is particularly so of Chapter 44; the terms used in disinfection, sterilization and preservation should be set in a beginning chapter so that all authors will adhere to the specific terminology used. This obviates the necessity of some authors redefining terms and giving them different shades of meaning. This rearrangement should bring more cohesiveness to the volume.

Of particular interest to the dental practitioner are Chapters 1 and 27. Chapter 1 (written by L.J. Joslyn, President of the Joslyn Valve Co.) is entitled "Sterilization by Heat," a form of sterilization most used by the dental clinician (although chemi-sterilization is becoming increasingly popular and is covered partly in Chapter 3, "Sterilization with Glutaraldehyde."). The chapter is a good discussion on the state of the art of heat sterilization. However, there is much discourse on the biology of bacterial spore heat resistance which may not be as pertinent to the practising dentist. There is also much technical detail on the workings of the autoclave which is not required by the practising clinician. But there is much of value to the dentist, such as the thorough

evaluation of sterilization indicators. The chapter is a good reference on heat sterilization; much useful information can be extracted from it. Such information is there among the plethora of little details of interest only to those doing research in this area.

The dental practitioner faces a constant occupational risk of infection from oral bacteria and agents of systemic disease from the oral cavities of their patients. This fact of life makes Chapter 27, "Sterilization, Disinfection, and Asepsis in Dentistry," by J.J. Crawford of the School of Dentistry, University of North Carolina, particularly pertinent. There is a thorough discussion of sterilization and disinfection procedures focusing on tubercle bacilli and Hepatitis B viruses as target organisms. (Unfortunately, there is no mention of the AIDS virus [human T-cell leukemia virus-III]; the disease came to our attention since late 1978.) Particularly relevant is the section "Post-treatment Infections and their Control." This Chapter is recommended reading for all dental students and practising dentists who believe in continuing education.

The third edition of *Disinfection, Sterilization and Preservation* is an updated version of a valuable standard reference. It is highly detailed, complete with documented references, especially of the earlier literature. It will remain a classic work in this area for many years.

*This book was reviewed by
Dr. E.C.S. Chan,
Department of Oral Biology,
Faculty of Dentistry, McGill University,
Montreal, Quebec H3A 2B2.*

THE ART AND SCIENCE OF OPERATIVE DENTISTRY

C.M. Sturdevant, R.E. Barton,
C.L. Sockwell and W.D. Strickland

*The CV Mosby Company
Toronto, Ontario
\$66.50 588 pages.*

Shortly after I agreed to do this review, I was struck with a cold, numbing sensation. I had just agreed to do a review of a textbook on Operative Dentistry. This brought back haunting memories of second year dentistry: pondering laboriously over dull and boring faceless pages; reading and not understanding; re-reading and hoping the light would come on somewhere in the seemingly empty chasms of my brain. Much to my relief, such was not the case with Dr. Sturdevant's book. It is very easy to read and is full of excellent illustrations.

This is the second edition of this book and as the author suggests, the information has

been updated and expanded, such as the information on acid etch techniques and pin-retained restorations.

This book was written for dental students to learn the theory and techniques of Operative Dentistry. The procedures are so well described and illustrated that the practitioner will have no trouble understanding new techniques or modifying old ones to keep abreast of new ideas or theories that have emerged in the field of operative dentistry.

There is an excellent review in chapter two of dental anatomy, histology and occlusion, while chapter three deals in depth with the etiology of carious lesions and caries prevention.

Chapter four is as comprehensive as one will find on patient assessment, examination, diagnosis and treatment planning. The student can use this as a model in his practice. It covers medical and dental histories, charting, a logical step by step clinical examination of the teeth, restorations, the periodontium and occlusion, as well as an extensive section on treatment planning.

Chapters five through seven explain in depth the fundamentals of cavity preparation, the design of hand cutting instruments and the control of moisture through the use of the rubber dam.

In chapters eight, nine and ten, the student and practitioner can follow the step by step procedure of Classes I, II, and III cavity preparations for both conservative and extensive outlines. Each operation is described in detail from instrumentation and application of specific bases, to matrices and the carving and finishing of amalgam restorations.

The next two chapters discuss tooth colored restorations. They present the many uses of composite resins with the associated acid etch techniques for Classes III, IV and

V cavity preparations. As with the amalgam, a step by step technique for cavity preparation is presented. The authors explain the different types of composite resins, the conventional composites, the microfills, the hybrid composites and their specific uses. This chapter also discusses the application of matrices, the use of self-curing and light activated resins, and burs and instruments used in the finishing of composite resins.

Chapter twelve I found to be the most rewarding. It deals with the subject of bonding. The authors present methods of treatment for enamel hypoplasia, abrasion, erosion, the correction of embrasures, the closing of diastemas and treatment of intrinsic and extrinsic stains. They explain the current thinking on veneers, both direct and indirect, and criteria for whether or not to reduce tooth structure. Several other acid etch related techniques such as splinting of periodontally involved teeth, Maryland bridges, and construction of a temporary bridge using natural or denture teeth are presented.

Chapter thirteen is totally new as compared to the original text and provides a thorough treatise on the uses of pins.

The last few chapters deal with the use of gold inlays and onlays. Cavity preparations are again presented in detail. Emphasis is also given to impression taking, temporization, bite registration, insertion and cementation of the finished gold restoration.

This book on operative dentistry by Dr. Sturdevant et al is an excellent teaching text for the dental student and an excellent reference book for the practitioner, one which, no doubt, I will use a great deal.

*This book was reviewed by
Dr. E.T.M. Gerald,
who is in private practice in
Calgary, Alberta.*

OBITUARIES/NÉCROLOGIES

BREGMAN, M.A.: Dr. Bregman, of Winnipeg, Manitoba, who was retired from the practice of dentistry, died in March 1986.

BUCHHOLZ, K.P.: A graduate of the University of Manitoba in 1965, Dr. Buchholz was residing in Bear River, Nova Scotia, at the time of his death.

JEFFERIES, W.A.: A Life Member of the Canadian Dental Association, Dr. Jefferies graduated from the University of Portland Oregon in 1950. He was a resident of North Vancouver at the time of his death.

LAPORTE, L.: Né en 1951, le D^r Laporte a obtenu son diplôme à l'Université de Montréal en 1977. Au moment de son décès, il habitait à Ste-Agathe-des-Monts (Québec).

RENAUD, N.: Née en 1946, le D^r Renaud fut diplômée à l'Université de Montréal en 1972. Elle habitait à Greenfield Park (Québec) au moment de son décès.

SEALE, G.D.H.: Dr. Seale, who graduated from the University of Toronto in 1931, was a resident of North Vancouver at the time of his death.

Continuing Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Practice Administration in the 80s	Practice Management	Sept 26 & 27 1986	Lecture	R.A. Brandon Course Director	Maximum of 40	\$200 DDS \$150 Aux.	GPs Specialists Assistants Hygienists	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Occlusion I Fundamentals of Occlusion and Articulation	Occlusion	Oct. 30 to Nov. 1 1986	Lecture Demo. Participation	Dr. W.R. Teteruck Course Director	Limited to 16	\$600 Instruments \$800	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	First Annual Update for Dental Nurses/ Assistants	Courses for Auxiliaries	Nov. 8 1986	Lecture	Dr. G.Z. Wright Course Director	Limited to 75	\$40 Non-Members \$45	Assistants Dental Nurses	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	The Prosthodontic Challenge — A Symposium	Prosthodontics (Fixed) (Removable)	Nov. 14 & 15 1986	Lecture	Dr. P.S. Sills Course Director	Maximum of 200 (Open)	\$295	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Operative Dentistry — A "Hands-on" Course	Operative Dentistry	Nov. 21 & 22 1986	Lecture Demo. Participation	Dr. M. Suzuki Course Director	Maximum of 20	\$350	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Crown & Bridge — Back to Basics	Prosthodontics (Fixed) (Removable)	Dec. 4-6 1986	Lecture Demo. Participation	Dr. D.R. Gratton Course Director	Maximum of 10	\$525	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Basic C.P.R. and a Review of Emergency Drugs	Emergency Dentistry	Dec. 13 1986	Lecture Demo. Participation	Dr. I.D.F. Schofield Course Director	Maximum of 20	\$120	GPs Specialists Assistants Hygienists Dental Spouses	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Orthodontics for the General Practitioner	Orthodontics	Jan. 23, 1987	Lecture Demo.	Dr. A.H. Mamandras Course Director	Maximum of 20	\$165	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Update '87	General Dentistry	Jan. 31, 1987	Lecture	Dr. G.Z. Wright Course Director	Maximum of 75	Not Decided	GPs	Mrs. M. Firmston (519) 679-2550

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Occlusion II A Gnathologic Waxing Course	Occlusion	Feb. 6-7, 1987	Lecture Demo. Participation	Dr. W.R. Teteruck Course Director	Maximum of 16	\$500	GPs Lab. Technicians	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Removable Partial Dentures	Prosthodontics	Feb. 26-28 1987	Lecture Participation	Dr. P.S. Sills Course Director	Maximum of 20	\$400	GPs Lab. Technicians	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Panoramic Dental Radiography	Oral Radiology	March 4, 1987	Lecture Demo. Participation	Dr. R.G. Stephens Course Director	Maximum of 12	\$120	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Electro-surgery in General Practice	Prosthodontics (Fixed)	March 6, 1987	Lecture Participation	Dr. D.R. Gratton Course Director	Maximum of 20	\$225	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Complete Dentures Today	Prosthodontics (Removable)	March 20 & 21 1987	Lecture Participation	Dr. P.S. Sills Course Director	Maximum of 20	\$250	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Esthetic Dentistry	Prosthodontics (Fixed) (Removable)	April 2-4 1987	Lecture Demo. Participation	Drs. D.R. Gratton & R.E. Jordan	Maximum of 25	\$525	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Occlusion III A Practical Approach to Occlusal Equilibration	Occlusion	April 24 & 25 1987	Lecture Participation	Dr. W.R. Teteruck Course Director	Maximum of 16	\$600	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Forensic Dentistry	Forensic Dentistry/ Sciences	April 24 1987	Lecture	Dr. S.L. Kogon Course Director	Maximum of 25	\$75	GPs	Mrs. M. Firmston (519) 679-2550
Faculty of Dentistry University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Nitrous-Oxide Oxygen Conscious Sedation	Oral and Maxillo-facial Surgery	May 21-23 1987	Lecture Demo. Participation	Drs. A.G. Parnell & I.D.F. Schofield	Maximum of 20	\$350	GPs	Mrs. M. Firmston (519) 679-2550

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3C 0W3	Winnipeg, Man.	Clinical Management of Temporomandibular Disorders	TMJ Disorders	Sept. 11 to 13 1986	Lecture	Dr. Welden Bell	Open	\$320	GPs Specialists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Identifying Oral Pathology/ Cancer	Oral Pathology	Oct. 18 1986	Lecture	Dr. A. Drinnan	Open	TBA	Hygienists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Prospering in Dentistry: Today and Tomorrow	Practice Management	Nov. 21 & 22 1986	Lecture	Mr. Aurom King	Open	\$250 DDS \$90 Aux. & Spouses	GPS Specialists Assistants Hygienists Spouses	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	C.P.R. — First Aid	Emergency Dentistry	Dec. 6 1986	Demo. Participation	St. John Ambulance			Hygienists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Space Management in Primary and Mixed Dentition	Orthodontics	Dec. 13 1986 & Jan. 10 1987	Lecture (Dec. 13) Participation (Jan. 10)	Ortho. Dept. of Dental Faculty	Open	TBA	GPs	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Restorative Update	Operative Dentistry	Jan. 31 & Feb. 7, 1987	Lecture Participation	Dr. F. Matiowsky	Open	TBA	Hygienists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Medical Emergencies in the Dental Office	Emergency Dentistry	Feb. 11 1987	Participation	Dr. Ron Boyar	Open	TBA	GPs Specialists	Karen McLean (204) 788-6331

Continuing Dental Education

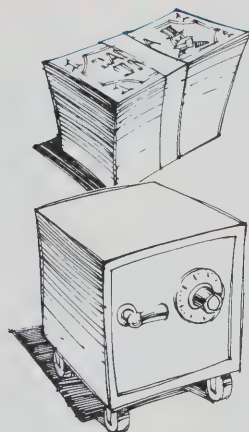
Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Planning + People = Productivity + Profits	Practice Management	Feb. 28 1987	Lecture	Dr. Jack Stockton Mrs. Sheryl Feller	Open	TBA	GPs Specialists Assistants Hygienists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Oral Surgery	Oral and Maxillo-facial Surgery	March 21 1987	Lecture	Dr. S. Weinberg	Open	TBA	GPs Specialists	Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave., Winnipeg, Man. R3E 0W3	Winnipeg, Man.	Jaw Function and Dysfunction		April 24 & 25 1987	Lecture	Dr. Parker Mahan	Open	TBA	GPs Specialists	Karen McLean (204) 788-6331
College of Dental Surgeons of Saskatchewan 109-514 23rd St. E. Saskatoon, Sask. S7K 0J8	Regina, Sask.	Anterior Resin Aesthetics	Operative Dentistry	Sept. 6 1986	Lecture	Dr. Mark Friedman	Open	TBA	GPs Specialists Assistants Hygienists	Dr. G.H. Peacock (306) 244-5072
College of Dental Surgeons of Saskatchewan 109-514 23rd St. E. Saskatoon, Sask. S7K 0J8	Saskatoon, Sask.	Endodontics for the GP	Endodontics	Oct. 3 & 4 1986	Participation	Dr. P.E. Teplitsky	Maximum of 12	TBA	GPs Specialists	Dr. G.H. Peacock (306) 244-5072
College of Dental Surgeons of Saskatchewan 109-514 23rd St. E. Saskatoon, Sask. S7K 0J8	Regina, Sask.	Diagnostic Challenges for Disorders of Head, Neck and TMJ		Nov. 22 1986	Lecture	Dr. Terry Tanaka		TBA	GPs Specialists Assistants Hygienists	Dr. G.H. Peacock, (306) 244-5072
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Prosthodontic Treatment Planning with Osseo-integrated Implants	Prosthodontics	Sept. 26 & 27 1986	Lecture Demo. Participation	Drs. Dennis Gilboe & Keith Compton	Maximum of 40	TBA	GPs Specialists Lab. Technicians	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Crown Build-Up, Post-Core Preparations	Oral Rehabilitation	Oct. 17 & 18 1986	Lecture Demo. Participation	Dr. K.L. Zakariasen & associates	Maximum of 40	TBA	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Clinical Aspects of Dental Care for the Elderly	Dentistry for the Aged	Oct. 25 1986	Lecture Demo.	Dr. J.A. Hargreaves & associates	Open	\$130	GPs Specialists Assistants Hygienists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Oral Radiology for the Dental Profession	Oral Radiology	Nov. 15 1986	Lecture Demo. Participation	Dr. D.C. Hatcher & associates		TBA	GPs Specialists Assistants Hygienists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Treatment Planning and Designing Removable Partial Denture	Prosthodontics	Nov. 21 & 22 1986	Lecture Demo. Participation	Drs. Eduardo Urrutia & Keith Compton	Open	TBA	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Basic Endodontic Surgery Techniques for the General Practitioner	Endodontics	Nov. 28 & 29 1986	Lecture Demo. Participation	Drs. Carl Hawrish & Don Collinson	Limited to 14	TBA	GPs Specialists Assistants	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Faculty of Dentistry University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Sonics in Endodontic Practice	Endodontics	Jan. 31 1987	Lecture Demo. Participation	Dr. Carl Hawrish & Ken Zakariasen	Limited to 40	\$150	GPs Specialists	Dr. Alex Bene Ms. Debbie Grant (403) 432-5023
Continuing Dental Education University of British Columbia, 105, 2194 Health Sciences Mall, Vancouver, B.C. V6T 1W5	Vancouver B.C.	Making Sense of Prevention?	Preventive Dentistry	Sept. 20 1986	Lecture	Walter Gabler, DDS, PhD.	Open	DDS \$95 Aux. \$50	GPs Specialists Assistants Hygienists	Dr. M.F. Williamson Jane M. Wong (604) 228-2627

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Continuing Dental Education University of British Columbia, 105, 2194 Health Sciences Mall, Vancouver, B.C. V6T 1W5	Vancouver B.C.	Utilizing Current Periodontic and Orthodontic Modalities in Complex Restorative Cases	Orthodontics Periodontics	Sept. 27 1986	Lecture	E. Harry Halpin DDS, — Kenneth K.S. Lee, DDS, Cert. Perio., M.R.C.D. (C)	Open	\$95 DDS \$50 Aux.	GPs Specialists Assistants Hygienists	Dr. M.F. Williamson Jane M. Wong (604) 228-2627

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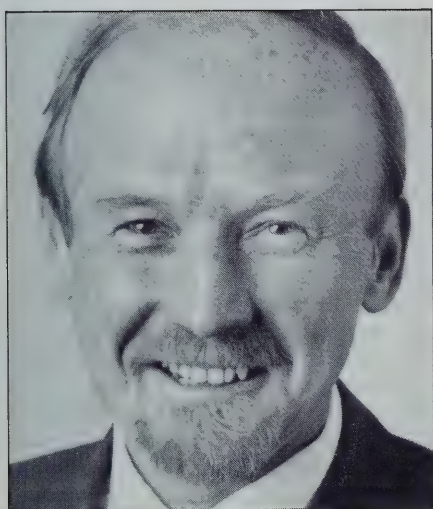
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Administered by Canadian Dental Service Plans Inc., 2 Lansing Square, Suite 600, Willowdale, Ontario M2J 4Z3.

Specialty Features

CURRENT STATUS OF GROUP DENTAL PRACTICE IN CANADA

R.L. Ellis, DDS, DDPH, MSc, FRCD(C)
Edmonton, Alberta



ABSTRACT

A survey was carried out of all dentists in Canada to determine the present status of solo versus group practice and any trends in patterns of delivery of dental care. Survey results showed that only 57 per cent of dentists in Canada are still in solo practice, 27.4 per cent are in dual practice and 17.6 per cent in group practice, with approximately one-third of younger dentists still in solo practice. The vast majority of those in dual or group practice are all general practitioners. Cost-sharing accounted for approximately 50 per cent of contract agreements with only 13.9 per cent a true partnership arrangement. While group practice is not for everyone, survey results indicated a growing interest by dentists in grouping together in the delivery of dental care.

Dentistry has a long tradition of delivery of dental care in a solo practice mode in both the United States and Canada. Prior to the 1970's in the United States there was an increase of only 5.5 per cent in dual or group practices over a 15 year period¹ and more recent reports^{2,3} indicate close to 80 per cent of dentists still in solo practice. Conversely, in medicine in the United States there was a 27 per cent increase in medical group practices from 1975 to 1980,⁴ with one in three medical practitioners now in group practices.⁵

In Canada, an earlier study in 1968⁶ also indicated a high percentage (82 per cent) of dentists in solo practice — a drop of only 4 per cent from five years previously. However, a more recent study in Ontario⁷ and a history of more and more graduating dental students joining established practices indicate that there might be a growing trend in Canada towards dentists grouping together.

In order to ascertain what actually is the current pattern in the delivery of dental care in Canada as related to group versus solo dental practice, a 35-question survey form was mailed to all dentists in Canada to determine the present status of solo and group dental practice in this country as well as any trends which may be present.

There are a number of definitions of group dental practice in the literature⁸⁻¹⁰ but for the purpose of this report, three or more dentists are used to define "group", with two-dentist practices being reported separately as "dual".

Response Rate

Of the 12,355 survey forms mailed (10,437 English, 1,918 French), 6,213 completed forms were returned, for an overall response rate of 50.3 per cent (English 52.8 per cent, French 36.4 per cent). The reason for the low response rate for the French-speaking dentists was a poorly translated survey form but the still high response rate and a comparable distribution make these results statistically valid.

The percentage response of dentists in returning survey forms in relation to sex, province, year of graduation and generalist vs specialist compares very favourably with percentages reported in 1983¹¹ and 1985¹² for Canadian dentists (Tables I and II). The only difference appears to be a slightly higher response from Alberta (province where survey originated), slightly less from Quebec (already explained) and slightly less from dentists graduating before 1946, but these minor deviations do not detract from the validity of interpretation of the survey results.

It is interesting to note from the overall survey results that the current profile of Canadian dentists shows 8 per cent female (CDA report estimates 14.7 per cent by the year 2001¹³), 10 per cent specialists, 65 per cent graduated since 1966, over 50 per cent under age 40 and 9 per cent in salaried positions. A further analysis of the overall results showed 21 per cent of female dentists work part-time, versus 6 per cent of male dentists. Only 5 per cent of female dentists are specialists versus 10 per cent of male dentists, and a greater percentage of female dentists are younger.

TABLE I

Percentage Response of Dentists by Sex and Province

	SEX		PROVINCE										
	MALE	FEMALE	B.C.	ALTA.	SASK.	MAN.	ONT.	QUE.	NFLD.	N.B.	N.S.	P.E.I.	YUKON N.W.T.
Survey percentage	92.0	8.0	15.0	12.6	3.4	4.3	42.6	14.8	1.2	2.0	3.3	0.5	0.3
1983* percentage	—	—	14.6	9.5	2.8	3.8	41.0	23.0	1.0	1.7	2.7	0.3	0.3
1985** percentage	91.7	8.3	14.6	9.3	2.9	4.0	39.9	22.5	1.3	1.7	3.2	0.4	0.2

* Health and Welfare, Canada.¹¹** CDA Figures Supplied.¹²

TABLE VIII

Percentage Response of Dentists in Practice by Gross Income

GROSS INCOME	SOLO	DUAL	GROUP	ALL DENTISTS
up to 150,000	38.3	36.4	29.9	36.3
150,000-200,000	23.6	24.1	25.0	24.0
200,000-250,000	18.1	17.9	19.8	18.4
250,000-300,000	9.6	10.4	11.3	10.0
over 300,000	10.4	11.2	14.1	11.3

TABLE III

Percentage Response of Dentists in Practice
Grouping of Dentists by Sex

GROUPING OF DENTISTS	MALE	FEMALE	BOTH SEXES
SOLO	58.4	39.8	57.0
DUAL	24.4	37.9	25.4
GROUP	17.2	22.2	17.6

TABLE IV

Percentage Response of Dentists in Practice
Grouping of Dentists by Age

AGE	SOLO	DUAL	GROUP	DUAL OR GROUP
20-24	29.2	50.0	20.8	70.8
25-29	36.0	39.0	25.0	64.0
30-34	49.7	30.2	20.1	50.3
35-39	54.1	26.9	19.1	46.0
40-44	63.2	19.7	17.1	36.8
45-49	67.6	16.6	15.8	32.4
50-54	71.3	16.4	12.3	28.7
55-59	71.7	18.2	10.2	28.4
60-64	75.6	15.5	8.8	24.3
65+	83.5	11.5	4.9	16.4
ALL AGES	57.0	25.4	17.6	43.0

Grouping of Dentists

The survey results indicated an increased number of dentists in Canada are looking towards dual or group practice as their choice of delivery of dental care. Table III shows only 57 per cent of dentists in Canada in solo practice, 25.4 per cent in dual practice and 17.6 per cent in group practice. If you include the 9.2 per cent of salaried dentists, the figures become 51.8 per cent solo, 23.0 per cent dual and 16.0 per cent in group practice.

Table III also indicates there are many more female dentists in dual or group practice than male dentists — 60.1 per cent versus 41.6 per cent. Provincial variations were not sufficiently different to indicate any distinct trend by province. Likewise, there were no major differences between the percentage of generalists who chose dual and group dental practice and the percentage of specialists who did not.

Table IV is an indication that there is a growing interest on the part of dentists to take up dual or group practice, with only about one-third of younger dentists still in solo practice.

A further indication of the relatively recent trend towards larger numbers of dentists taking up dual or group practice is the fact that 50.5 per cent of those in dual or group practice have only been in such a format for up to five years (76.5 per cent — 1-10 years) and only 9.5 per cent over 15 years, even though 27.1 per cent of the dual or group practices have been in existence for over 15 years.

Characteristics of Dual or Group Practices

The vast majority of those in dual or group practices are all general practitioners (Table V). Even the combination of generalists plus one specialty is just over 10 per cent, with all one specialty being approximately 5 per cent and multi-specialists being only 1 per cent. This is in direct contrast to medical group practices in the United States where the largest number of physicians are in multi-specialty groups, followed by single specialty groups, with physicians in general practice accounting for only 6 per cent.¹⁴

Dentists in group practice hire more employees than those in dual practice who, in turn, hire more than those in solo practice (Table VI), with the average number of 3.06 employees for all dentists.

Notwithstanding the possibility of misinterpretation of the survey question as to whether employees were responsible to one dentist or more than one, the most interesting feature with respect to employment of dental auxiliaries was the percentage response of dentists employing dental hygienists full-time and/or part-time (Table VII).

From these figures we can see that 56.4 per cent of dentists employ a dental hygienist either full-time or part-time, which is only slightly over the figure of 51.3 per cent reported from a 1983 survey in the United States¹⁵ which also showed similar employment patterns to this study regarding other employees in dental practice. However, the data also show only 16 per cent of dentists in group practice do not employ dental hygienists, compared to 56.2 per cent of dentists in solo practice. A further analysis showed most dentists in group practice hired only one full-time hygienist, although 20 per cent had two full-time hygienists, and 10 per cent had three. Periodontists indicated they employed the largest number of dental hygienists or are the specialty with the greatest percentage hiring dental hygienists (82 per cent), followed by pedodontists, then general practitioners.

Needless to say, dentists in dual and group

practices had larger offices and a greater number of operatories than those in solo practice. It was interesting to note that there were many more dentists in group practice in larger malls (versus in professional or residential buildings) than in dual or solo dental practice — 51 per cent versus 49 per cent for the latter two combined. Dentists in group practice also tended to have more than one office, as compared to those in solo practice.

A number of reports from the United States^{3,16,17} have indicated that dentists in group practice had a higher income than those in solo practice. While the data from this survey also showed a higher income on average, the differences were not major (Table VIII). In addition, other data indicated that fewer dentists in group practice were able to maintain an overhead at 50 per cent or lower compared to those in solo practice — 29.7 per cent versus 38.6 per cent. It would therefore appear that the reasons for Canadian dentists to consider dual or group practice versus solo practice are other than just cost efficiency.

Contract Arrangements

The majority of dentists who grouped together (57.8 per cent) combined as a two-dentist practice. An additional 20.2 per cent were groups of three dentists and those groups with 4, 5, 6 or over, were well under 10 per cent — a total of only 22 per cent.

Cost sharing accounted for approximately 50 per cent of the contract agreements between those dentists grouping together, with only 13.9 per cent a true partnership arrangement (Table IX). Female dentists had much more of a tendency to associate than male dentists (59.4 per cent vs. 32.2 per cent), while male dentists had more of a tendency to sign a cost-sharing agreement.

Further analysis of the data revealed that the majority of dentists in dual or group practice (68.4 per cent) determine practice policies by a business meeting of dentists, with only 10 per cent involving a business manager. There were no major differences in hours or days worked per week or patients per day by dentists in dual or group practice versus those in solo practice. Approximately one-third of those in group practice worked split shifts, weekends and/or evenings.

Why Dentists Grouped Together

As the number of dentists in group practice has grown, so has the debate over whether there are more advantages or disadvantages — be it in cost-sharing arrangements or true partnerships. Therefore, this

survey also included questions related to reasons for remaining in solo practice or choosing dual or group practice.

The most common reasons for solo practice given by those dentists in solo practice were: 'simple administration', 'prefer working alone', 'less unforeseen problems', and 'retaining individuality'. This helps to explain the low percentage of older dentists in dual or group practice (Table IV), since they are accustomed to individual practices, seeing no need to take on additional administrative responsibilities and the pressure of working closely with other dentists.

On the other hand, responses from dentists in dual or group practice indicated that there are many benefits from this type of practice, such as 'group consultation', 'dentist coverage', 'professional support', and 'economic benefits' — which ranked second even though data from this survey indicated only modest economic benefits from being in dual or group practice.

The only noticeable response to the listed disadvantages of dual or group practice by those engaged in such practices was either 'complex administration' or 'personality clashes', and even these were under 50 per cent. It is interesting to note that 'greater stress' was given as a disadvantage by only 9 per cent, which corresponds with a report from a United States survey, suggesting there is *less* stress in group dental practice.¹⁸

Conclusion

As start-up and overhead costs for solo practice continue to rise, it would appear that dentists in Canada are increasingly considering grouping together. According to data from this survey, the number of younger dentists already practising together with another dentist or dentists is over 60 per cent. This trend is likely to continue due to socio-economic pressures and easier access for patients, more flexible hours and increased use of auxiliaries.

TABLE V

Percentage Response of Dentists in Dual or Group Practice by Nature of Practice

NATURE OF PRACTICE	DUAL	GROUP
All generalists	87.4	73.7
Generalists plus one specialist	5.0	12.5
Generalists plus multi specialists	4.6	6.3
Multi specialists	0.6	1.4
Single specialty	2.4	6.1

TABLE VI

Percentage Response of Dentists in Practice by Number of Employees

NUMBER OF EMPLOYEES	SOLO	DUAL	GROUP	ALL DENTISTS
0	1.6	0.1	0.2	1.2
1	14.3	3.3	0.3	9.2
2	32.0	20.4	6.2	24.4
3	31.9	40.7	28.0	33.3
4	13.3	22.0	33.1	19.0
5	4.2	9.6	19.2	8.2
6	1.4	2.3	7.2	2.6
7+	1.2	1.6	5.7	2.1

TABLE VII

Percentage Response of Dentists in Practice Employing Dental Hygienists Full-Time and/or Part-Time

EMPLOYING DENTAL HYGIENISTS	SOLO	DUAL	GROUP	ALL DENTISTS
Full-time only	19.5	31.0	41.9	26.3
Part-time only	17.1	21.7	14.2	17.8
Full-time and part-time	7.2	12.9	27.9	12.3
TOTAL	43.8	65.6	84.0	56.4

TABLE II

Percentage Response of Dentists by Year of Graduation and Generalist/Specialist

	YEAR OF GRADUATION					GENERALIST/SPECIALIST				
	Up to 1945	1946-1955	1956-1965	1966-1974	1975 to present	Gen. prac.	All spec.	Ortho	Perio	Oral surg
Survey percentage	3.3	11.5	17.6	32.5	35.1	89.6	10.4	3.9	1.3	1.5
1983* percentage	—	—	—	—	—	89.3	10.7	3.7	1.5	1.9
1985** percentage	8.3	11.9	15.5	28.5	35.8	—	—	—	—	—

* Health and Welfare, Canada.¹¹** CDA Figures Supplied.¹²

TABLE IX

Percentage Response of Dentists in Dual or Group Practice by Contract Agreement

CONTRACT AGREEMENT	MALE	FEMALE	BOTH SEXES
Cost sharing	50.7	21.3	47.7
Associateship	32.2	59.4	34.8
Partnership	13.4	16.3	13.9
Other	3.7	2.9	3.5

At the same time, it would also appear that many dentists prefer cost-sharing or associateship arrangements to true partnerships. This could lead to an increased percentage of single-owner group practices, which means that a large percentage of practising dentists will not have ownership in the practice where they deliver dental care. In contrast, in the United States, over 90 per cent of medical group practices are multiple doctor-owned or partnership arrangements.⁵ Once dentists have more information about dual and group practice, we may see more progress towards multiple dentist-owned practices, perhaps larger organizations and use of full-time managers.

While dual or group dental practice is still not for all dentists, its future seems quite positive for Canada. A similar survey a number of years hence should be able to measure continuing trends or any changing patterns.

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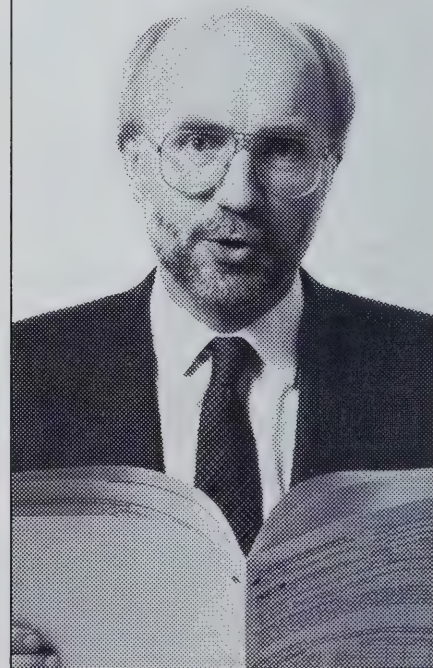
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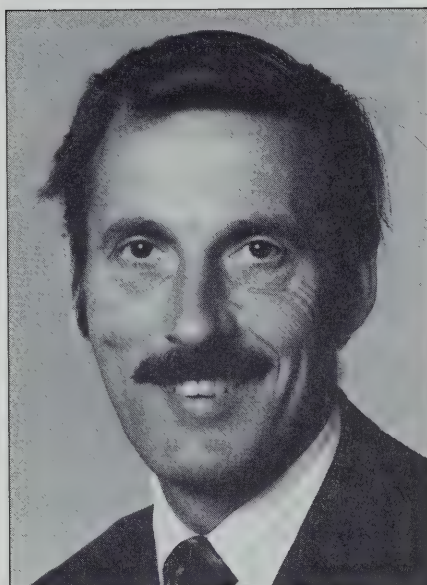
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RESUME

Derek W. Jones, BSc, PhD, FICeram, CChem, FRSC, FADM is Professor and Head of the Division of Dental Biomaterials Science and Chairman of the Research Development Committee at Dalhousie University, Faculty of Dentistry and Adjunct Professor in Engineering Physics, Technical University of Nova Scotia. He has conducted research on a wide range of dental materials and material properties covering ceramics, refractories, hard and soft polymers, composites, dental cement, bone cement, mercury pollution and currently synthesis of glass and polymer materials. Dr. Jones has authored or coauthored more than 80 papers and has contributed chapters on ceramic materials to five books. Dr. Jones has been involved with the development of standards for dental materials since 1970 and is currently Chairman of the Canadian Standards Association Technical Committee on Dentistry and Chairman of the Canadian Advisory Committee to the International Standards Organization. Since 1979, he has been on the Secretariat of the International Standards Committee dealing with filling materials. Dr. Jones has been a visiting Professor at five Dental Schools and lectured and presented 63 papers in ten different countries.



working group made recommendations in the spring of this year to both of the federal funding agencies concerning priorities, funding and organizational arrangements which are necessary in order to sustain a viable program of dental research in Canada.

It is no secret that the level of dental research activity in many of our dental schools is less than acceptable. As every psychiatrist knows, some people avoid problems by denying them, others by ignoring them. Neither method is effective. In order to develop public opinion we have to look realistically at the problems and what it will mean for everyone if we neglect them.

We should congratulate the working

group on completing their difficult task. The words of Jonathan Swift come to mind "Whoever could make two ears of corn or two blades of grass to grow upon a spot of ground where only one grew before would deserve better of mankind than the whole race of politicians put together". Or perhaps the words of George Bernard Shaw "Some men look at things the way they are and say 'why'? I dream of things that never were and say, 'Why not'?"

"Many people think that research is a supernatural gift of the gods. However, it is simply an idea from a troubled mind, an inspiration followed by infinitely painstaking work and perspiration" (- Sir Frederick Banting).

This paper has been written with the hope that it may stimulate and encourage further research activity in our dental schools. Research, intellectual inquiry and quest for knowledge are or should be inherent to all academic programs of a university. Dentistry together with Medicine and other health sciences have a moral obligation to pursue research in order to work towards the elimination of disease and to improve the level and quality of the treatment received by patients. This lofty ideal is a basic part of the professional philosophy and should be the driving force for sustained research. The challenge to intellect and passion posed by the suffering of dentally sick people while not as powerful as in Medicine is still an extremely powerful source of motivation. The prospect of really worthwhile advances in dental research remain good. The status of dental research is comparable to that of chemistry and engineering of over a hun-

The Medical Research Council and Health and Welfare Canada have commissioned a review of dental research in Canada. The working group set up to undertake this review have now completed their task. The

dred years ago. We may have discovered the steam engine and the car but have yet to discover the jet engine. Dental research has yet to take off. Don't let us miss the boat let alone the jet. Science and dentistry have always been closely linked but have yet to be completely united.

Scientific discoveries in dentistry cannot be planned but once they have been made it is extremely helpful to have the facilities to undertake development and testing. New ideas in dentistry will have to grow at the expense of older ones, we will need to have a system that can provide a high standard of proof that the new is better than the old. This can only come from strong research based Dental Schools.

The benefits of scientific advances in dentistry can only be reaped if they are properly tested and developed into a form that is suitable for the general practitioner.

Our Faculties of Dentistry act as a resource knowledge base for the dental profession as well as the whole Canadian population. Dr. James Bowden said "If dentistry wishes to pursue its status as a learned profession, it must sustain a vigorous research component of such quality that it enlarges our ability to prevent and treat dental disease". Bowden who also went on to say that "There is an acute deficiency in the number of clinical dental faculty who are adequately trained to do high quality research". Dr. Enid Neidle, former President of AADR, has suggested a mentor apprentice program (MAP) in which inexperienced faculty work with established investigators. Neidle further made the point that "clinical research of the highest quality literally pours out of medical schools and that it is done by individuals whose training does not extend beyond medical school, residency or specialty training". It may well be that most of our dental clinical faculty have not had the opportunity or the necessary stimulus to develop research skills.

During 1984/85 the MRC provided \$101,871,596 in operating and major equipment grants, of this, only 2.5 per cent went to our ten dental schools. In contrast Dalhousie University Medical School alone received 3.6 per cent of this funding, over a million dollars more than all dental schools in Canada.

Larkin Kerwin, President of NRC, has said "University graduates should be distinguished by an understanding of research and thus be psychologically prepared for change". How true this is for our future dental graduates. Kerwin further stated "if University graduates have any distinguishing mark, it should be that they have spent some time in the presence of research". Kerwin finally made the point: "Take away research and you have an institution

duplicating things that are all done elsewhere. Keep only research and you have a University still".

I have to agree with my colleague Dr. Peter Waite, a Professor of History at Dalhousie University, who said that "Researchers are driven; they are driven not just by a sense of duty, or by being paid to do what they do; they are driven by excitement". Dr. James Winby, a biology researcher, has also said that "Research represents the roots of the tree of knowledge". If dentistry is to harvest some of the fruits of knowledge we had better sow some more seeds quickly.

The following is an excerpt from the Frank Schofield Memorial Lecture (given by Dr. Duncan Sinclair and reported in the MRC Newsletter Vol. 16, No. 2, April 1984).

"If the present conflicts between the demands of teaching and demands of research continue in our professional schools — conflicts which erode the capacity of the professoriate to engage productively in research and the opportunity for students to be influenced directly by the enquiry of their teachers — professional education will soon cease to be education. It will be confined to training and lose the capacity to renew itself or even keep up-to-date."

"We cannot allow this to happen!"

"We have a tremendous investment in professional education in Canada, one that has paid handsome dividends on its modernization and expansion, primarily since the end of the Second World War. The research capability of the professoriate is not as great as it could or should be but it is very respectable in the majority of institutions; in some it is clearly outstanding, contributing regularly and substantially at the international cutting edge of biomedical knowledge."

"Despite present preoccupations with the here and now, with the 'relevancies' of the moment and seeming unwillingness to consider so-called 'Short-term pain for long-term gain', I believe that the citizens of Canada would not knowingly or willingly weaken our research base in biomedical science."

"It is incumbent upon us to make and make again the case for research — to get the message through to the man on the street, the opinion-maker in the media, and the political representative in the parliaments and legislatures — the message about the vital link between research and the ultimate quality of the human and animal health care systems of this country."

"Research and teaching are the twin pillars of education. Let us settle for nothing less in health professions than educated men and women, those described by Huxley

as 'equally able to spin the gossamers as forge the anchors of the mind.'"

These words of Duncan Sinclair have a special significance for dentistry.

It is my hope that the level of research activity within Canadian Dental Schools will increase during the next few years. Faculty members should never be at a loss for new topics. "The diversity of the phenomena of nature is so great, and the treasures hidden in the heavens so rich, precisely in order that the human mind shall never be lacking in fresh nourishment" (Johannes Kepler). "The essence of science is that it is self-correcting. New experimental results and novel ideas are continually resolving old mysteries" (Carl Sagan).

How can we define research in our dental schools? L.H. Meskin's "The Dental Academics Dictionary 1982" gives the following definitions:

1. "A state to be avoided at all costs".
2. "An enjoyable pursuit to achieve academic excellence".

Our aim should be to encourage as many dental faculty as possible to come to accept the second definition as a more accurate description. Man's insatiable curiosity has taken him from simple cave dwelling to outer space. As dental university teachers we are allowed to indulge our curiosities and acquire and disseminate knowledge. The freedom of thought, the pursuit of research, and the interaction of minds provides us with a continuous challenge to old ideas and accepted dogmas. Our research can lead to their replacement with new theories, knowledge and visions for the future. How can we go about conducting a research project?

Stage One

You must first draw up a complete protocol before initiating the project. This is the most important stage. Research requires skills — you may have to learn some new ones! — but what skills have you got? — you shall use these to advantage.

RESEARCH — WHAT ABOUT THE COST?

The greatest expenditure involved in any research project is probably time rather than money. Time is the only real capital we have, we should spend it wisely. Time well spent on a project will produce a more knowledgeable faculty member with skills and training to critically evaluate new developments in dental health care and will allow these ideas to be reflected in your teaching.

In the development of the research protocol you should consider the following four aspects:

1. The research problem.
2. Reasons for undertaking the research.

3. Research program goals.

4. Literature documentation.

1. The Research Problem? We may not have a problem to solve, we may simply require an answer to a question. However, we should aim to define the problem or question clearly. Charles F. Kittering said, "A problem well stated is a problem half solved". We should also remember the words of G.K. Chesterton, "It isn't that they can't see the solution. It is that they can't see the problem".

2. Why do you want to undertake the research project? It may be for our own ego or self-esteem, the need to impress our colleagues, to gain promotion or perhaps you are aware of a problem which you would like to know the answer to. Any and all of these may be real and legitimate reasons for undertaking the research. "According to mythology a scientist is supposed to be eternally moved only by innate curiosity about how things work and what they can do, there is nowadays a slightly different social mechanism whereby a man is led to feel his personal inspiration and mavericity acknowledged among other men as having triumphed over ambient conservatism and caution as well as over the secrecy of nature" (Derek J. deSolla Price).

3. The program goals. Clearly defined program goals are required, but keep it simple! William Feather once said "Beauty flows out of simplicity". Research projects need not be complex and should be designed around the strengths and skills of the researcher. "Essentia non sunt multiplicanda praeter necessitatem — The theory of a phenomenon must not be more complicated than is necessary" (William of Ockham 1300 A.D.). Do not attempt to conduct an unrealistic amount of work — on the other hand, do not attempt to conduct too superficial a study.

4. The literature search. A sound knowledge of the relevant literature is essential. What is the state of the art in the area of your study? The library is your best friend. We should not be put off by other research reports we read. The true meaning of research is to search again. A good literature search may save us valuable time and effort if extensive work has been undertaken on the topic. "Reading maketh a full man; conference, a ready man; and writing, an exact man" (Francis Bacon). The reviewing of journal articles in the literature will soon raise a number of questions, since virtually no research publication is absolutely definitive and will not satisfy all aspects of the problem. Douglas Waugh said that "whenever a scientist does not understand the interactions of complex phenomena, he disposes of the problem by writing them all down and drawing arrows between them.

This gives the illusion of both profundity and simplicity that allows him to live with his problem." It may be possible to take another's unsolved problem and get rid of the need for arrows?.

Researchers must have a critical approach when reviewing the literature. Publications of research findings in a journal do not automatically mean that the findings or conclusions are correct. "Beware of false knowledge; it is more dangerous than ignorance" (George Bernard Shaw). You should ask yourself if the discussion and conclusions are in accord with the experimental results. It is often possible to find an interesting situation in which several authors hold differing opinions and views on a specific topic — this may well provide scope to re-examine the phenomenon. "Even when all the experts agree, they may well be mistaken" (Bertrand Russell).

Albert Einstein once said "No amount of experimentation can ever prove me right; a single experiment can prove me wrong". Isaac Newton understood the value of previous research when he said "If I have been able to see further than others, it was because I stood on the shoulders of giants". Asked about the accomplishments at a late date in his life Newton said he had been like a young boy playing on a beach. He had found some interesting pebbles and shells yet all the while the whole ocean had lay before him to be discovered. Eden Phillpots once said "The universe is full of magical things patiently waiting for our wits to get sharper". "The process of scientific discovery is, in effect, a continual flight from wonder" (Albert Einstein).

Wernher Von Braun once said "Basic research is what I am doing when I don't know what I am doing". However, our research need not have a practical application as its goal. Some of the key figures in the history of science (Galileo, Newton, Faraday, Darwin) were very rarely concerned with the practical applications of their ideas.

"Lives of great men all remind us we can make our lives sublime; And, departing, leave behind us footprints on the sands of time; Footprints that perhaps another, sailing o'er life's solemn main, A forlorn and shipwrecked brother, seeing, shall take heart again. Let us then be up and doing, with a heart for any fate; Still achieving, still pursuing — learn to labour and to wait!" — Longfellow — A Psalm of Life

Perhaps our research will enable us to leave behind some footprints in the sands of time within the scientific dental literature.

RESEARCH OBJECTIVES OR HYPOTHESES

The research may be DESCRIPTIVE in nature. The objective may simply be to

describe a particular phenomenon without asking any explanation. For example, what is the level of dental caries in a particular population or what is the level of mercury vapour in dental offices? On the other hand a HYPOTHESES may be set up which demands an explanation to be given from the data. In an ideal project we should:

1. Define the problem.
2. Propose a hypothesis.
3. Test the hypothesis by gathering data, analyze the data.
4. Present the results and/or conclusions to some form of peer body.

We may set up a null hypothesis that dental caries is independent of social and economic characteristics of communities, or that the level of mercury vapour in dental offices is independent of methods, equipment or floor coverings used in the dental office.

The formation of OBJECTIVES or HYPOTHESES for the study are very important in order to clarify the detail and direction of the project.

RESEARCH PLAN

A step by step outline of the proposed work should be produced. Clearly express your ideas — keep it simple. Place emphasis on the quality of the experimental design. Make sure that the experimental approach suggested is based upon sound scientific principles. What is your rationale for choosing the test methods to be used? Are the methods, instrumentation and equipment the most appropriate to use? Are the methods you have chosen reliable and accurate? Do not let the availability of specific items of equipment dictate the methods you use. "We do not see things as they are, we see things as we are" (The Talmud). Consider the relevant parameters such as clinical, physical, and chemical factors. Which of the parameters exerts the greatest influence? Do you wish to use accelerated test methods? Do you need to use double-blind procedures? Are your methods justified or necessary? Are you asking the right questions? Bertrand Russell once said "Aristotle could have avoided the mistake of thinking that women have fewer teeth than men by the simple device of asking Mrs. Aristotle to open her mouth".

It should be realized that a simple case study in which a single group of patients are studied only once represents a very limited and non-scientific research design. It may be a little better to study the same group over several periods of time, however, this is still not a true scientific study. A study with two or more groups would be much better. A true scientific study will involve at least two groups with genuine random selection and

random assignment from the complete population. It should be clear that the groups should be as similar as possible prior to the experiment.

If your experimental results disagree with those reported in the literature, you may wish to conduct further tests to confirm your findings. If time permits it may be possible to follow-up interesting side-lines which have been revealed during the progression of the project. This may be particularly important if the major objective is proving to be unsuccessful. However, in general it is important to proceed in a reasonably direct line from your starting point to your desired conclusion — if you try to investigate every interesting side-line it may take you several years before any real progress is made.

DATA AND INFORMATION REQUIRED

List each item of data and other information required to accomplish the OBJECTIVES or to test the hypothesis. "Plato asserted that the heavenly bodies move in circles because the circle is the most perfect geometrical figure. He was wrong; the most perfect construction is a straight line connecting your theory with facts" (Joel H. Hildebrand).

Ask yourself what is the significance of the study? Preliminary tests may be required to evaluate which of several methods we should use. In very many projects there is a need to use built in controls, these controls may be positive or negative. We should make sure that the controls do not interact with the test sample.

List equipment, supplies, facilities and service needs required to complete the project. Produce a budget and itemize the costs, but be sure to look out for any hidden costs.

Not all research requires expensive equipment. In the 3rd century B.C. Eratosthenes, an astronomer and mathematician, read in the library in Alexandria that in the city of Syene (500 miles away) at noon on July 21 a reflection of the sun could be seen at the bottom of a deep well. The sun at this time was directly overhead. The library scroll also stated that the sun on this day at noon cast no shadows. Eratosthenes found that in the city of Alexandria a stick placed upright in the sand did cast a shadow at noon on the 21st July. From this he concluded that the Earth was round not flat and he was able, by means of simple geometry, to estimate within a few percent the true circumference of the earth. Eratosthenes did not require an MRC research grant or expensive equipment. His only equipment was a stick, eyes, feet, brains, the use of a library, and a taste for experiment. The only cost was a little of Eratosthenes time; Jay

Forrester once said "The only problems money can solve are money problems". However, more research dollars for medical and dental research would seem to make sense.

RECORD KEEPING

Systematic Approach

The golden rule is to have a very systematic approach to all record keeping of all research data. Details of all variables and conditions should also be recorded. It should be possible to go back and repeat the experiment exactly next week or in ten years time. Another individual should be able to repeat your experiment in another laboratory based upon your notes. It is very important in some cases to make note of apparent insignificant data and information. Insignificant factors may turn out to be very important at a later stage. You should record how, when and what was done. List specific details of experimental conditions and materials. Do not get discouraged if you make errors or mistakes. We all make mistakes. We can often learn more from making mistakes if we recognize them. Look out for errors and miscalculations. Judgement comes from experience and experience from bad judgement. However, "an intelligent man learns from his mistakes, a genius learns from the mistakes of others" (J.W. Lang). Observation and analysis are the key to success. Aim to develop intellectual curiosity. Very many important discoveries are arrived at by chance.

It was a piece of good luck and good fortune that Fleming happened to have his laboratory next to some stables which were the probable source of the mould 'Penicillium Notatum', which contaminated his bacterial cultures. His alertness, perceptiveness and attention to detail led him to appreciate the significance of what he saw. Discoveries in research can only occur if we have well prepared minds which are energized to ask questions and pursue problems. Intuition is very important, if you suspect something does not appear to be in accord with an anticipated result you should re-test or re-examine the phenomenon.

DATA ANALYSIS

Before you start generating data you should give some thought as to how you are going to deal with it. It is important to decide how the data will be summarized and what statistical test methods need to be used. Analysis of the data can be one of the most rewarding and exciting parts of the research project. The statistical method to be used may dictate the type of data you need to collect. The use of micro computers has made this task very much easier. However, we should remember that to err is human, but

to really foul things up requires a computer. Statistics can be regarded as the tool or instrument of scientific inquiry which provides the organized method for summarizing data and highlighting the useful information in the data, in order for us to be able to draw valid conclusions.

Statistics have been described as the science of making decisions in the face of uncertainty. The often quoted statement that you can easily prove anything with statistics is just not true. It would perhaps be better to say we cannot assume the likelihood of anything without statistics. Statistics and statistical methods are often misunderstood and this has resulted in many sardonic witticisms such as: "A statistician is a person who draws a mathematically precise line from an unwarranted assumption to a foregone conclusion." Others may say that like sex and morality the problem in statistics is knowing where to draw the line. In our choice and use of a statistical method certain assumptions need to be made. The type and number of assumptions will vary depending upon the statistical problem to be solved. The danger lies in making assumptions which are unjustified, we should also guard against deciding upon a conclusion before we analyze our data. We should aim to avoid the criticism that our statistical analysis involves the manipulation of ambiguous data by means of dubious methods to solve a problem which has not been defined. A well known remark which has been related to the abuse of statistics is that "statistics can be used as a drunk uses a street lamp — for support, rather than for illumination". Perhaps the best known quote is that attributed to Mark Twain when speaking to Disraeli, "there are three kinds of lies: lies, damned lies and statistics". The choice of our statistical method is most important and will in many cases form an important part of the experimental design. It was once said that you don't need statistics to prove that "dental research kills rats". However, we shall require some form of statistical method in any project we choose.

Clinical studies and even many laboratory studies such as for example, electrochemical corrosion or fatigue testing of metals; involve sufficient variability to impart some degree of uncertainty as to the possible conclusions to be drawn from the observed results. It is clear that if meaningful and proper evaluation of experiments of this type are to be carried out, it will require the application of sound statistical methods. It is important to use statistical methods which will quantify the uncertainty as well as reducing it to a low level. For this reason it is important that statistical considerations form part of the experimental design, since

the analysis and experiment are interdependent. The choice of experimental design will influence the selection of the appropriate statistical analysis and, conversely the selection of a statistical method will be influenced by the research plan. However, in many cases the final choice of the specific statistical test will have to be selected in order to cope with the distribution of data.

A sound experimental design is however, essential for the results to be of any value. No amount of scientific or statistical expertise can recover information from a poorly designed experiment. On the other hand a well designed experiment has the advantage of facilitating the application of efficient and valid statistical procedures, and in most cases will make it a much easier task to interpret and analyze.

The main problem we face in the use of statistics and in the design of our experiment is the fact that we will need to make a statistical inference from the random test sample to reach conclusions about the complete population from which the sample has been drawn. Konrad Lorenz once said "Truth in Science can be defined as the working hypothesis best suited to open the way to the next better one".

As stated above we cannot easily separate the statistical method from the research method. The usual procedure in the development of the experimental design is to set up a "Statistical Hypothesis" known as the null hypothesis together with an alternative hypothesis. The stages in the statistical experimental design are as follows:

1. A random sample (or samples) is obtained from the complete population.
2. A numerical quantity (statistic) is calculated from the data.
3. The null hypothesis is accepted or rejected depending upon the value of the statistic.
4. Rejection of the null hypothesis means automatic acceptance of the alternative hypothesis.

We have to recognize that whenever a conclusion is reached based upon a statistical analysis there is the possibility of an error. We need to consider the statistical risk we are taking in coming to any conclusions. This will in part be related to the size and composition of our random sample. Unfortunately, the methods of statistics do not yield *certain* answers. In any given experiment it is impossible to make a decision which is *known* to be *correct*; instead we have to make a decision which is *likely* to be correct.

In order to make a decision about the effectiveness of a new dental procedure you may choose to test 100 patients. Assuming that research has previously shown that 50 per

cent of the patients recover and show no symptoms within five days of the conventional treatment; in order for you to prove that your new procedure is more effective you will have to apply some form of statistical analysis.

Common sense would seem to indicate that for your new method to be more effective it would require that more than 50 out of your 100 patients should recover within five days. However, the problem is how many more than 50? Would 51, 55, or 75 be necessary? Suppose that you run the experiment and 77 out of the patients recover within five days. You may choose to conclude that your new dental procedure is more effective. On the other hand you may believe that your new method is no better than the established procedure since the 77 out of 100 may have happened due to chance. How can you make a rational decision in the above case? We could assume that the data conforms to a normal distribution and use this to formulate a criterion for making a decision. By use of a binomial distribution curve with $n = 100$ and a mean of 50, we know that 5 per cent of the area under the curve is 1.645 standard deviations above the mean (50). With a standard deviation of 5, we can calculate $5 \times 1.645 = 8.225$. Thus you could conclude that your new procedure is more effective if more than 58.3 recoveries occur within five days. This is based upon the assumption that the number of expected successes obtained are significantly greater than 50. But what do we mean by significantly greater? We need to state this in quantitative terms. In our example we assume that the new procedure was better than the established method if we saw a five per cent improvement (5 per cent of the normal distribution). As previously stated when we reach a conclusion based upon a statistical analysis we have the possibility of an error. The statistical method *cannot yield certain* answers, it can only help us to make decisions in the face of uncertainty. "Statistics are like a bikini, what they reveal is suggestive, but what they conceal is vital" — Aaron Levenstein. We should remember that it is the data from the experiment which is being tested for statistical significance; thus statements of significance are statements about the experiment and not about the clinical procedure.

Seeing is Believing?

Psychologists have conducted experiments in which subjects have been requested to identify playing cards as they are visually presented to them. The majority of the cards would be quite normal, however, some are deliberately abnormal such as a black 7 of hearts or a red 9 of spades.

The subjects naturally have no difficulty in identifying the normal cards presented, however what is interesting is that they initially also identify (incorrectly) the abnormal cards. The subjects will tend to identify the black 7 of hearts as a 7 of spades or the red 9 of spades as a 9 of hearts. Such experiments have shown that it may take very many incorrect observations of abnormal cards before the observer finally realizes that something unusual is being presented. In conducting a scientific experiment we have to guard against not seeing the unexpected or the unusual in our observations. As individuals we tend to see what we expect to see, it is important that we aim to preserve our scientific objectivity. We should try to avoid biased or prejudiced viewpoints which may distort our perceptions. Someone once said "Discovery consists of seeing what everybody has seen and thinking what nobody has thought." We could perhaps go further and say discovery consists of seeing what nobody has seen and thinking what nobody has thought.

However, it has often been shown to be important to have some preconceived opinion or an idea of what you might be looking for (a hypothesis or unproved theory). An apparently lucky guess in science has quite often turned out to be correct in spite of the limited evidence to support such a conjecture. Einstein once said "If the researcher went about his work without any preconceived opinion, how should he be able at all to select out those facts from the immense abundance of the most complex experience, and just those which are simple enough to permit lawful connections to be evident?" Most of the major scientific discoveries have not been based completely upon objective observations and theories.

The classical interpretation of probability in which all outcomes are equally likely tells us that drawing a single ace from a normal deck of 52 cards has a 4 out of 52 chance, or a probability of $P = 0.0769$. The probability of drawing a black ace of spades 1 in 52 or $P = 0.0192$. On the other hand the probability of drawing any card with some markings on it would be 52 out of 52 $P = 1$. The probability of drawing a Red ace of spades from a normal pack of cards would be zero, $P = 0$. In our research experiments (non-classical probability) we may not always be dealing with a normal pack of cards. When conducting our experiments we are searching for the unknown, in most cases we do not know how many cards are in the pack, or how many aces are present. We may have a situation which is representative of many randomly mixed packs with some cards missing. Subjectivity is essential. We cannot rule out the possibility of a red ace of spades. In a sense we cannot be

completely objective in science. Einstein's relativity theory went against the current facts of the time and did not seem to make sense in our three dimensional world. However, Einstein was able to use an inspired guess and some intangible assumptions to produce a formula which seems to make sense. It seems that Einstein was able to conceive the possibility of a Red ace of spades. An element of preconceived opinion may in fact be necessary in many cases in order to bring a successful conclusion to the experiment. However, such measures should only be attempted by those with intellectual inspiration and alertness combined with a sound understanding of the theoretical possibilities. Such action requires objectivity combined with a healthy measure of scepticism and imagination.

Measurement

In most experiments we have to use 'APPROXIMATE VALUES' by estimating the size or value of the test object. For example the size of a dental casting can be measured with a rule as being 12 mm. The accuracy of this measurement is indicated by the two significant digits, or we may say the measurement is accurate to the nearest 1 mm.

A more precise measurement might be made with a vernier gauge to show the size to be 12.2 mm. In this case the significant digits have been increased to three. The size of the casting is now accurate to the nearest 1/10 mm. An even more precise measurement using a micrometer may indicate that the size is actually 12.24 mm, which indicates an accuracy to 1/100 mm or to the nearest 10 μ m. The required accuracy of an approximate number depends upon the type of experiment, the questions to be asked and the comparisons which have to be made. It may be quite meaningless in some experiments to measure to more than one or two decimal places. There is thus a limit to the required accuracy or the number of significant digits which are required for any experiment. The various related measurements being approximated will dictate the level of accuracy required.

We have to realize that the error which is introduced by the approximate measuring or rounding off of numbers, will be dependent upon the number of significant digits in the number. The smaller the number of significant digits, the greater the range of the error. In the case of the dental casting measured by a rule as being 12 mm (2 significant digits), the number 12 represents a rounded off value of any size from 11.6 to 12.4 mm. This gives a possible range of error of $(12.4 - 11.6) = 0.8$ mm or 6.67 per cent. If the size of our casting is indicated as 12.2 (three significant digits)

this number represents any size from 12.16 mm to 12.24 mm. In this case the range of possible errors becomes $(12.24 - 12.16) = 0.08$ mm which is ten times more accurate than the previous case. If on the other hand we use the micrometer value of 12.24 mm (four significant digits) the actual size may be anywhere from 12.235 mm to 12.245 mm. In this case the possible range of error would be as low as $(12.245 - 12.235) = 0.01$ mm or 0.082 per cent.

In producing any "approximate data" we need to know the accuracy, precision, stability and consistency of the measurements being made. We should also aim to determine how reproducible the measurements are by repeat testing.

On the other hand some of our experimental data may be given in "Exact" numbers, such as: - 50 rats, 15 dental castings, 35 dental students, 48 prosthodontic patients or 295 amalgam restorations.

Research Schedule

It is important to set starting and completion dates. Aim to set a time schedule for completion of each phases of the project *"Time is that familiar though inscrutable one dimensional something which separates changes in bodies and individual sensations and extends without known limits from past to the future"* (Barton).

Even though we know in many cases we may not be able to keep to the schedule due to unforeseen problems and difficulties which may occur - we can always update the deadline. Preparing material for a meeting is one way which may help to keep the project on schedule. In some cases it may be important to complete and finalize each phase of the project in terms of calculations, determinations and analysis before moving on to the next phase, since it may be necessary to modify the research plan in the light of findings. You should aim to reappraise the project at each phase or stage in terms of the basic hypothesis. It might be an advantage to write up detailed reports at regular intervals. This will provide a continuous review of the project. However, "it is a capital error to theorize before the data is in, intensely, one begins to twist facts to suit theories, instead of theories to suit facts" (Sherlock Holmes).

WHICH PROJECT SHOULD YOU CHOOSE?

Harold Pinter once said "Apart from the known and the unknown, what else is there?" "The known is finite, the unknown infinite; intellectually we stand on an islet in the midst of an illimitable ocean of inexplicability. Our business in every generation is to reclaim a little more land". (T.H. Huxley, 1887).

The Latin word caries appears in the medical writings of Celsus 1st century A.D. The Assyrians in 1000 B.C. imagined that a worm caused toothache. The treatment a mixture of second rate beer and oil. Today the scientific method enables us to understand such problems as toothache. Shakespeare's metaphor (King John) "sweet, sweet, sweet poison for the ages tooth" indicates that the connection between sugar and dental caries was suspected even at that time. The 17th century Englishman James Hart wrote "The immodest use of most confections and sugar plummets heateth the blood, rotteth the teeth, maketh them look black". Dental research scientists can feel proud of the fact that they have made progress in the past 30 years which has reversed the trend of the previous several thousand years of history with a significant decline in the prevalence of dental caries.

George Bernard Shaw wrote "The man with the toothache thinks everyone else happy whose teeth are sound". It is known that the rate of dental caries in children has declined, however, it is not known whether that reduction will be sustained in late adolescence or old age. Will root caries or recurrent caries around restorations become a major problem in the future? Will cracks in the enamel of teeth 'enriched' by fluoride result in unsuspected caries in dentin? Epidemiological data with up-to-date figures are essential for us to be able to follow trends.

The cost benefit analysis of public health programs needs to be looked at. Most caries preventive methods are very much underutilized. We need to analyze the reasons for this and to study the complex reasons which help to shape dental health policy decisions. Toothache may largely be a problem of the past but dental disease is still with us. "There has never been a philosopher that could endure the toothache patiently" (Shakespeare) - Much Ado About Nothing. "Every tooth in a man's head is more valuable to him than a diamond" (Cervantes - Don Quixote). The current status of dental disease needs to be documented, your clinic records may provide you with valuable research data. Up-to-date epidemiological data is urgently required - this data can help to develop, refine, and test hypothesis related to all aspects of dental health care. In terms of selecting a research project perhaps our main dilemma lies in the decision in choosing from the vast number of potential topics.

Every time we give a lecture, open a textbook or dental journal we have a question we could ask. Why? What if? How? Our students and colleagues ask us questions all the time. Keep a little book handy and write

them all down. "To be ever concerned, and ever looking on new objects with endless curiosity, is a delight known only to those who are turned for speculation" (Richard Steel). All research need not take place in a laboratory with test tubes and complex instrumentation. We can conduct research each day in the clinic, the classroom or library.

SOME IDEAS FOR RESEARCH PROJECTS

1. Stress experienced by dentists, dental students or patients.
2. Teaching effectiveness.
3. Dental school admission tests.
4. Trends (and volume) in dental research publications.
5. Utilization of dental library.
6. The public image of dentistry.
7. The cost effectiveness of physical methods of plaque control.
8. Is the prevalence of periodontal diseases increasing or decreasing?
9. Which population groups are most at risk from periodontal diseases?
10. Cost benefit analysis of dental public health programs.
11. The incidence of caries in the older population.

LABORATORY AND CLINICAL STUDIES

A very neglected area of research in dentistry concerns the relationship between laboratory and clinical studies. Laboratory research is very much easier to conduct since we can more easily control the variables.

Dr. Lisa Tedesco of the State University of New York and others have emphasized the need for clinical faculty to collaborate with basic scientists. Tedesco et al. have said that "The most important task for the new clinical researcher is to begin organizing and systematically documenting clinical experiences. The essential task of clinical research is the identification of existing patterns, or the laws of nature". Tedesco et al. made the point that in the absence of such documentation as a basis, research questions are irrelevant and your analytical techniques will be wasted. They further stated that "Clinicians must begin, as part of their responsibility to their science and profession, to record their experience, to raise the questions that arise from their experience, and to participate in the discovery of answers to these questions. It may be possible for dental faculty to collaborate with private practitioners or study clubs in order to conduct clinical trials.

CLINICAL TRIALS

The clinical trial needs to be carefully designed due to the multifactorial nature of the clinical situation. Clinical evaluations (scoring systems for example) require careful, systematic study. Research shows that measuring scales should contain few points and that some form of objective performance criteria should be used. Evaluator training has been shown to improve reliability. When dealing with clinical or biological research we should remember the words of Shakespeare (Othello) "What wound did ever heal but by degrees?" or of Francis Bacon "We cannot command nature except by obeying her".

In a Clinical study we should: —

1. Select factors to be studied.
2. Control all other independent variables as closely as possible.

The independent variables are those which are presumed to influence another variable. The dependent variables result in data which is dependent on a prior influence by an independent variable.

We have to consider very carefully the kind of population to be studied, the source and selection of the population and the method of assigning units or control groups. Is the population representative? The population in your dental clinic, or the local area may not be representative? Has the population been randomly selected? The time of arrival of patients at the clinic may not be random but may be influenced by external factors. What about the size of the population? How stable will the population be? Will the population be stable during the term of the experiment? What estimate can you make for wastage from the population? In selecting the different groups you should aim to ensure that the groups have similar characteristics.

Training or pre-testing plans in the case of clinical study are often very important. However, we have to be aware of the danger of sensitizing the research participants by pre-testing. Changes may occur in the calibration of the test instruments and observer ratings with time? "Science is a long history of learning how not to fool ourselves" (Richard Feynman).

In the case of human experimentation we have to consider ethical propriety and develop a patient's consent form. Any project involving examination or treatment of humans requires an evaluation by an 'Ethics Committee'. It should be noted that animal studies also require ethical considerations, however we do not yet require an animal consent form.

SO YOU HAVE COMPLETED YOUR RESEARCH PROJECT

What have you discovered? This will be the question posed by friends and relatives. In truth, it should be a matter of personal discovery. The ideas which you obtain need not be original for you to discover them. Perhaps it would be better to say rather than ask 'What have you discovered?' instead "What insights into truth and reality have you gained"? You may ask what impact your modest research effort can have? It should be remembered that a small and apparently insignificant finding may enrich our basic store of knowledge relating to dental health care problems. The real satisfaction which you will get on completion of your project lies in the realization that you have been able to develop concepts, theories or classifications and conclusions arrived at by experiment, observation and analysis. You should aim to make sure that your conclusions are clear and are supported by the method and statistical analysis applied to your data.

Aim to present results at a meeting and publish a paper if results are found to be of value. You should not, however, feel that the project has to result in a paper or a publication. The real value of the research lies in the knowledge and experience which you, as the researcher, have gained.

We can admire a landscape without understanding and knowing its biological structure, we can enjoy a symphony without being able to read music, or a painting without having the skill with a brush or understanding details of design and perspective. However, our appreciation in all cases will be deepened through knowledge and understanding. Our ability as teachers of dentistry will be enhanced by knowledge gained through research and intellectual enquiry. The insights gained from our research can lead to greatly improved teaching and clinical treatments. Aim to leave some footprints in the sands of time.

Do I Need a Research Grant?

How Do I Go About Getting One?

MRC provides in-house funding each year to the dental faculties (\$15,000).

Federal Funding Agencies

1. MRC — Main support for dental research in Canada, about \$150 million/year, various types of grants.
2. HEALTH AND WELFARE CANADA — \$12-13 million, various types of grants.
3. NSERC — Natural Sciences and Engineering Research Council, various types of grants — not applicable for most dental research?

USA

National Institute for Dental Research
National Institute of Health

Canadians and all other non-USA residents have to be in the top 30 per cent of grant applicant ratings to obtain funding.

Some Funding Agencies and Foundations

Alpha Omega Foundation (USA)
Arthritis Foundation
Canadian Cystic Fibrosis Foundation
Canadian Diabetes Association
Canadian Geriatric Research Society
Canadian Heart Foundation
Multiple Sclerosis Society of Canada
Muscular Dystrophy Association of Canada
National Cancer Institute of Canada
Terry Fox Program N.C.I.C.
The Sugar Association Inc.
United Cerebral Palsy Research and Education Foundation Inc.

MRC (Medical Research Council)

Basic, applied or clinical research (high priority given to clinical trials) *BUT NOT* health care research.

MRC research funding is intended to: *"expand the scientific and technological base for health care, improve the application of scientific principles to health care, ensure an adequate research base for education in the health sciences, support the training of research investigators in the health sciences, support research contributing to new knowledge in the health sciences"*.

N.H.R.D.P. (National Health and Welfare)

Public health.
Information relative to health of Canadians.
Availability, accessibility, quality of health care.
Health hazards — home, workplace, natural environment.
Illness prevention.
Promoting behaviours conducive to good health.
Disabled — handicapped — native peoples.

SOME FINAL THOUGHTS

There is no set approach to any problem and this is very true for the development of your research plan. A trial and error approach may be necessary in the early stages of some projects, while in others a slow, logical, progressive approach may be more appropriate. Other projects lend themselves to a simple direct approach. "Given a thimble full of facts we rush to make generalizations as large as a tub" (Gordon W. Allport). While rapid results will impress your Chairman and the Dean and you will be eager to satisfy your own enthusiasm, remember that it is easy to overlook significant findings in the haste to achieve early publication. Plan to submit any draft paper to senior colleagues for their review. "It is what you learn after you know it all that counts" (John Wooden). "Science is a flickering light in our darkness, it is but the only one we have and woe to him who would put it out" (Morris Cohen). "Whoever profoundly understands a superficial part of life necessarily gains metaphysical insight along with it" (Keyserling).

In Canada we spend some \$800-900 million each year on dental treatment, in the USA the cost is well over twenty times this figure. It has been estimated that some 32 million work days (\$3 billion in wages) were lost in the USA in 1979 as a result of dentally related health problems. This was said to be some 37 per cent higher than the time lost due to strikes. Substantial public support for dental research should be possible based upon these figures. Indeed the public may even demand that we have an undeniable and irrefutable moral obligation to engage in dental research. Since it can also be "an enjoyable pursuit to achieve academic excellence" what other excuse do we need?

As our collective dental research activity grows in Canada, it will act as a magnet attracting other investigators who will be able to learn from active researchers and in

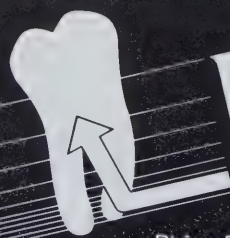
turn, help to train those who will come later. Dental research in Canada is in the anomalous position of having extraordinary potential at a time of economic constraint. Dental research grants are becoming much more difficult to obtain, however, the absence of research grants need not prevent us from conducting research.

Beginning researchers will find that it may be much better to work with a senior researcher for one or two years in order to gain experience. We need to work together to foster the cause of research with courage and confidence. If you plan to leave some footprints in the sands of time, do it *now* before the sands of time run out. Jacob Bronowski once said "Every animal leaves traces of what it was; only man leaves traces of what he created". However, we should also remember that research is an enjoyable pursuit, as Elbert Hubbard once said "Do not take life too seriously you will never get out of it alive". It is a very sobering thought when I realize that I may have spent some 25 to 30 per cent of my research career time writing research grant applications. The balance of the time I have spent trying to prove 'NOTHING' (null hypothesis) with the aid of 'APPROXIMATE' measurements and using statistical techniques which cannot yield 'CERTAIN' answers.

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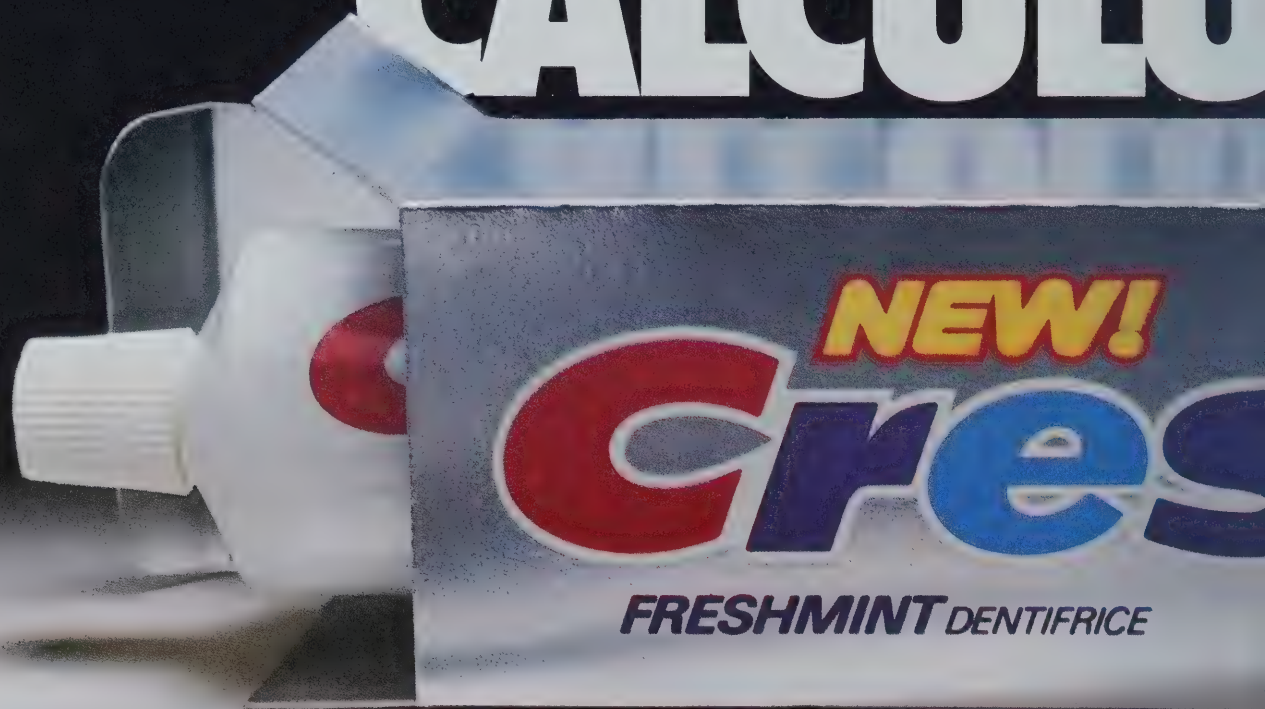


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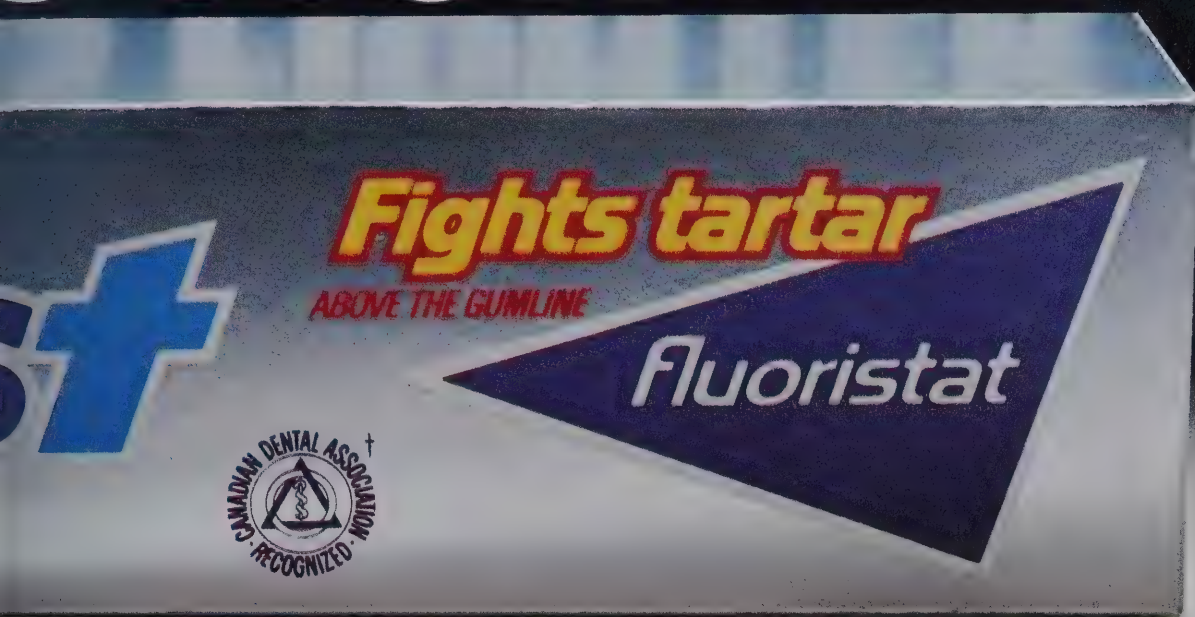
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Specialty Features

TORONTO *DENTIST* MEETS COMET HALLEY



Dr. George E. Sparrow, his son Chris and wife Sandra recently had a close encounter: with Comet Halley.

Halley's Comet, more properly known to astronomers as Comet Halley, was at its maximum visibility on April 11, 1986 at southern points in North America, Dr. Sparrow, a Toronto dental practitioner and his son Chris, who is majoring in astronomy and physics at the University of Toronto, decided that a trip to the southern Florida Keys to photograph Comet Halley was well worth the time. Dr. Sparrow, who numbers photography among his many hobbies used his son's astronomy expertise to photograph the comet.

The Sparrows chose Key West since "Key West is approximately Latitude 25 degrees, and Comet Halley would be at least 20 degrees above the horizon at Key West at about 1:10 a.m. local time on April 11 at a bearing of due south," Dr. Sparrow told the Journal.

The family rented a 28-foot mobile home and took off for the Florida Keys, and was rewarded by the first sighting of the Comet in the northern part of Kentucky. The Comet was sighted with binoculars but as it was just above the horizon at that point, "the sighting was a bit dismal so the telescope was not tried at all that night," said Dr. Sparrow.

Within two more days, the Sparrows settled in at the 59.5 mile marker on the Florida Keys, at Marathon, Florida. On the second sighting of the Comet, Dr. Sparrow had this to say:

"My son Chris and I set up to shoot the Comet from across the Key, which was not a particularly good place to get a good photograph. The wind was also, unfortunately, blowing very hard."

The Sparrows persevered, however, and attempted a photograph anyway. "The telescope was vibrating because of the wind

and there weren't any successful photographs of Comet Halley that night," said Dr. Sparrow. "But we developed the negatives to check on our exposures, the average exposure being 20 minutes, using ASA 400 film. We found that camera or telescope movement because of the wind, was our only real problem," said Dr. Sparrow.

On the third try on their trip, the Sparrows were at last successful. The best pictures were taken from a campsite looking out over the water.

"There was very little wind and, using his binoculars, my son Chris began to see Comet Halley about 9:30 that night. By 10:00 the telescope was set up and Chris stayed up until 3:00 a.m. making exposures at various times," Dr. Sparrow told the Journal.

The photo published in this issue was taken on the third attempt at photographing the Comet. Dr. Sparrow explained the photograph this way:

"You will see in the centre of the photograph, the Comet. The stars all appear as straight lines. The exposures for this particular photo was approximately 20 minutes, thus the stars appear as lines and the Comet is like a smudge with a halo and two very indistinct tails."

For future generations of Comet photographers, Dr. Sparrow had some hints on how to have a "close encounter" of your own.

"The best amateur technique for photographing Comet Halley is to use the telescope to track the Comet and have a camera with a telescopic lens to take the actual picture," he said. "In our case, the piggy-back camera was a Pentax body type LX and the lens was a Leitz Telyt 400 mm F 5.0. The telescope was a Schmit Cassergrain which has an off axis tracking device which the telescope operator uses to keep the telescope aligned with the Comet.

(Normally, a telescope tracks the stars,)" said Dr. Sparrow.

One bonus visible in the photograph is a radio galaxy, Centaurus A, which is a straight line, but fuzzy "like a caterpillar with a halo", said Dr. Sparrow.

The photograph, which was taken by Chris Sparrow, was developed on site by Dr. Sparrow. When asked by the Journal editor if a colour photograph of the comet might be available, Dr. Sparrow commented that all the best photos of Comet Halley are black and white, "like the night sky." According to Dr. Sparrow, photographs showing the Comet "in colour" are done using filters or tinting the photograph and are not a true representation of Comet Halley.

(The Journal thanks Dr. Ken Pownall, for originally leading the Editor to Dr. Sparrow as a source for this story.)

EES-600

(erythromycin ethylsuccinate)

CLASSIFICATION: ANTIBIOTIC

Indications: The treatment of the following infections when caused by susceptible strains of micro-organisms: upper and lower respiratory tract infections; skin and soft tissue infections; gonorrhea; syphilis; Legionnaires' Disease; short term prophylaxis of bacterial endocarditis in patients hypersensitive to penicillin.

Contraindications: Known hypersensitivity to erythromycin.

Precautions: Erythromycin is excreted principally by the liver. Administer with caution to patients with impaired hepatic function. There have been reports of hepatic dysfunction, with or without jaundice, in patients receiving oral erythromycin products.

Safety for use in pregnancy has not been established. Although the antibiotic crosses the placental barrier and appears in breast milk, fetal plasma concentrations are generally low.

The rare possibility of superinfection caused by overgrowth of nonsusceptible bacteria or fungi should be kept in mind during prolonged or repeated therapy, especially when other antibacterial agents are simultaneously employed. In such instances, the drug should be withdrawn and appropriate treatment instituted if necessary.

Toxic reactions as a result of significant elevations of serum theophylline concentrations have been observed in patients after initiation of erythromycin treatment. Ensure that serum theophylline concentrations in such patients are monitored.

Adverse Effects: The most frequent adverse effects of erythromycin preparations are gastrointestinal, such as abdominal cramping and discomfort, and are dose-related. Nausea, vomiting and diarrhea occur infrequently with usual oral doses.

Mild allergic reactions, such as urticaria and other skin rashes, have occurred. Serious allergic reactions, including anaphylaxis, have been reported.

Dosage: Although erythromycin ethylsuccinate preparations can be administered regardless of meals, optimum blood concentrations are obtained when the antibiotic is administered immediately after meals.

Children: In mild to moderate infections, the usual dosage of erythromycin ethylsuccinate for children 6 months to 10 years (weight 7 to 32 kg) is 30 to 50 mg/kg/day in equally divided doses. For more severe infections, this dosage may be doubled. If twice-a-day dosage is desired, one half of the total daily dose may be given every 12 hours.

In the treatment of streptococcal infections, administer a therapeutic dosage of erythromycin ethylsuccinate for at least 10 days.

Presurgical prophylaxis of endocarditis in children: 30 to 50 mg/kg/day divided into 3 or 4 evenly spaced doses.

Intestinal amebiasis in children: 30 to 50 mg/kg/day in divided doses for 10 to 14 days.

Adults: 600 mg, three times a day is the usual dosage. Dosage may be increased to 4 g or more per day according to the severity of the infection.

If dosage is desired on a twice-a-day schedule, one half of the daily dose may be given every 12 hours.

In the treatment of streptococcal infections, a therapeutic dosage of erythromycin should be administered for at least 10 days. In continuous prophylaxis of streptococcal infections in persons with a history of rheumatic heart disease, the dose is 600 mg twice a day.

When used prior to surgery to prevent endocarditis, a recommended schedule for adults is: 600 mg before the procedure and 600 mg every 8 hours for 3 doses after the procedure.

Primary Syphilis: 48 to 64 g in divided doses over a period of 10-15 days.

Gonorrhea: 3 g daily in divided doses for 5 days.

Intestinal Amebiasis: 600 mg 4 times daily for 10 to 14 days.

How supplied:

EES-200 GRANULES: Each 5 mL of reconstituted banana-flavored suspension contains erythromycin ethylsuccinate equivalent to 200 mg of erythromycin activity (100-mL bottles).

EES-200 CHEWABLE TABLETS: Each scored chewable tablet contains erythromycin ethylsuccinate equivalent to 200 mg of erythromycin activity (bottles of 50 tablets).

For full therapeutic effect, tablets must be chewed.

EES-400 GRANULES MEM-PAC-7: Each 5 mL reconstituted banana-flavored suspension contains erythromycin ethylsuccinate equivalent to 400 mg of erythromycin activity (105-mL bottles for 7-day treatment).

EES-400 GRANULES MEM-PAC-10: Each 5 mL of reconstituted banana-flavored suspension contains erythromycin ethylsuccinate equivalent to 400 mg of erythromycin activity (150-mL bottles for 10 days treatment).

EES-600: Tablets: Each ovaloid, yellow Filrtab[®] tablet contains: erythromycin (as the ethylsuccinate) 600 mg. Available in bottles of 50 tablets.

Full prescribing information available on request.

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PRELICENSURE AS AN INSTRUMENT FOR MAINTENANCE OF STANDARDS

E.R. Ambrose, DDS, FICD, FACD, FRCD(C)
Former Dean of Dental Faculty, University of Saskatchewan

INTRODUCTION

My understanding of the general concept for a proposed "prelicensure period" respecting Canadian D.M.D. or D.D.S. graduates is: a scheduled variety of practice settings and experiences wherein they will have the opportunity to more completely develop assessment, diagnostic and clinical skills for patient treatment; practicing what was learned in theoretical and applied aspects of undergraduate programs. Informal observation/instruction and involvement in ongoing clinical studies, continuing education courses, etc. could be expected, and would complement the varied clinical settings to be arranged. Dental graduates would hold a provisional provincial license under these conditions. The above process would be seen as an instrument for maintenance of standards.

It is anticipated that sufficient, applied, preclinical and clinical course work as undergraduates will be retained to master an acceptable level of clinical skills. However, selected repetitious treatment procedures relevant to some disciplines would: —
(a) take place during the prelicensure period in an environment where the new graduate could more completely develop the judgement and confidence required when making informed decisions as to the services required.

(b) develop the ability to provide a reasonable output of preventive, control and treatment clinical services at an acceptable quality level, in cooperation with other professional and paraprofessional personnel. The "over the shoulder supervision of the undergraduate years" would be

removed and phased out; and replaced by regular audit, quality assurance or peer review procedures for treatment in progress or completed during several phases of the prelicensure period. An examination of the knowledge base and clinical judgement acquired during this time period will be assessed.

A person would be viewed as competent at the successful completion of the prelicensure period; in order for graduates from approved Canadian degree programs to be granted a regular license to practice general dentistry in either a specific provincial jurisdiction or, if awarded an N.D.E.B. Certificate, would provide access to most Canadian provinces.

I was asked by the program chairman,

Dean G. Beagrie, to describe some of the features related to the undergraduate dental degree program at the University of Saskatchewan; due to a minimum of one year of university level education to satisfy required subjects for entry to medicine or dentistry, and then five years within the Colleges of Medicine or Dentistry in Saskatchewan to qualify for a medical or dental degree. The overall minimum number of years of university level education prior to the awarding of either medical or dental degrees is the same as other university programs. *The main difference is the minimum of five years within the respective colleges prior to recommendations for the degree.* (See Table I for profile of freshman classes, years 1981-85).

TABLE I

University of Saskatchewan Freshman Class (1980/81-1985/86)

	1980-81	1981-82	1982-83	1983-84	1984-85	1985-86
Number Accepted	F/6,M/19	F/10,M/13	F/3,M/10	F/9,M/12	F/12,M/9	F/9,M/12
1 Year U.L.E.	15	12	5	10	5	6
2 Years U.L.E.	3	5	7	6	5	4
3 Years U.L.E.	2	1	1	—	2	2
Degrees & 4 Years or more U.L.E.	5	5	8	5	9	9
Age Range	18-29	18-37	18-43	18-39	18-35	18-31
Average Age	21	22	21	21	23	23
D.A.T.	All	All	All	All	All	All
M = Male						
F = Female						
U.L.E. = University Level Education						
D.A.T. = Dental Aptitude Test						

SECTION I

The University of Saskatchewan (U of S) Dental Undergraduate Program:

Class size — 21 students.

Years I and II are similar to other programs where:

- the basic biologic sciences are presented, and at the University of Saskatchewan in the main, to combined classes of medical and dental students.
- most preclinical subjects are introduced to begin the development of required skills and hand/eye coordination prior to patient contact.

- a brief introduction to some clinical procedures takes place where reversible procedures are demonstrated and/or students work in pairs.

Year III Level:

The first term of Year III is a combination of basic biologic science courses, entry to the clinical setting in Periodontics and Operative dentistry, and preclinical instruction in Orthodontics and Pedodontics. *By Term II — Year III* most clinical disciplines begin patient treatment or continue from Term I. The remaining preclinical course in Endodontics is presented.

Year IV Level:

A full year of theoretical and applied work

related to all clinical disciplines, from September — April end — followed by examinations. (During the summer months between Years IV and V Dental Externships are permitted and will be described further on in the paper).

Year V — Term I:

Seminars are presented during Term I in most disciplines and patient treatment continues in all disciplines. Formal didactic course work is completed during Term I, and final comprehensive written and/or oral examinations take place in early December.

Year V — Term II — Option period

The following appears in the Information Bulletin — University of Saskatchewan — Dentistry:

"In the 1974-75 session, an option program was introduced in the second term (January to April) of the fifth year. Fifth year students, who are deemed to have fulfilled the regular course requirements up to the end of term one of fifth year, are permitted to select an option program or a combination of option programs offered by or approved by one or more Departments of the College — *on base or elsewhere*. *Students who have not fulfilled the regular requirements are required to maintain the standard curriculum for the balance of the 5th year.*

The objectives of the option program are:

1. To afford senior students an opportunity to increase their knowledge and develop their expertise in a particular area or areas of dental health care before graduation.
2. To provide at the undergraduate level, an opportunity for advanced experience in a favoured or chosen area of study and/or research.

3. To broaden the student's grasp and appreciation of the significant role of dentistry and the dental profession in the affairs of mankind, on this continent and abroad."

The Option period has a formal course number DENT 610.24. No grade is assigned, but the option period must be "completed satisfactorily" and be so recorded on the course completion schedule to be recommended for the degree. Both on base and off base students have supervisors who are responsible for "Progress Reports" and an evaluation of performance. The full-time faculty member who is the Option Program coordinator is required to secure the reports and notifies the Chairman, College Undergraduate Education Committee (U.E.C.) when students have received a satisfactory rating and report. This indicates the "Option Course" has been completed. If all reports regarding a student are satisfactory then a recommendation is made to the University to award

TABLE II

Participation Rate (1980-85) Saskatchewan Dental Externship Program

Year	1980	1981	1982	1983	1984	1985
(1) Year IV Class Size (5 Yr Prgm)	19	22	22	23	22	20
(2) Total No. summer externs (up to 3 mths)	15	15	19	15	18	15
(3) Students in rural pract. receiving Govt. Subsidy (from 2)	7	9	6	9	9	9
Percentage Participation	79	68	86	65	81	75

These totals include 3 or 4 extern students who were hired by the University of Saskatchewan to provide diagnostic, emergency & essential clinical services for 10 weeks in the summer months — to patients who are screened and treatment planned for assignment to teaching clinics during the next academic year. Faculty who are not on holidays accept the "general supervision" of students providing these services (for one or two weeks). Coordinated by the Associate Dean who is the Director of Clinics.

TABLE III

Participation Rate (1981/82 — 1984/85) University of Alberta Students as Summer Externs

Year	1981/82 — 1984/85
Year III Class Size (4 Yr Prgm)	44 — 48 for time frame indicated.
Mobile Clinics operated by Univ. of Alberta	21-22 students gain clinical experience during summer months. (2 week roster only)
Dent. Externs in Private Prac. Settings	One-half to three-quarters (11-18) of the students who work in the mobile clinics continue on to private office settings.

(A) The mobile clinics are funded through the University of Alberta.
(B) There is no subsidy from the Alberta Health Dept. for students in rural practices.

TABLE IV

Participation Rate (1981/82 — 1984/85) University of British Columbia Students as Summer Dental Externs

Year	1981-82	1982-83	1983-84	1984-85
Year III Class Size (4 Yr Prgm)	43	37	39	35
Total No. summer externs in Private Practice	7	5	10	10

(A) Program sponsored by the Univ. of British Columbia, Faculty of Dentistry.
(B) There is no subsidy from the British Columbia Health Department for students in rural practices.

a D.M.D. degree at the Spring Convocation. (No further examinations are required at the completion of the Option Program. The theoretical and clinical requirements were met at the end of Term I and prior to permission to proceed with the Option possibilities selected by the student.)

SECTION II

The following is a more detailed description of (a) the Summer Externship Program between Years IV and V and (b) The Option component of the Year V program.

A. The Summer Externship Program:

Objective: to provide senior students with (1) an opportunity to practice general dentistry under the general supervision of a licensed practicing dentist(s) in a private office setting in Saskatchewan, (2) to gain practical office management experience, (3) develop more confidence rendering preventive and treatment services to patients in a private practice setting; with the opportunity to exercise some independent thought and judgement. The supervising dentist indicates the basis on which the "student extern" will function in a particular office setting; and how the treatment planning and assignment of work, fee determination etc. will be managed.

In 1979 an arrangement was worked out with the Provincial Health Department whereby dental externs who were working in cities and towns outside Saskatoon and Regina would be subsidized for up to three months during the summer. A grant is made to the Licencing body which registers all externs with dentists who will be their supervisors, and forwards the subsidy to the offices for payment to students. The dentists are asked to match the subsidy in the rural areas so that the externs will receive a reasonable monthly salary. This is preferred rather than dentists paying a percentage of gross income that could be generated by dental externs. It encourages the student externs to maintain a high quality of suitable services rendered according to a logical treatment plan; thus emphasizing and practising procedures or techniques taught to them in the undergraduate program.

(There are a limited number of externs that the government will subsidize and for the last few years the maximum was nine externs for a full three months of practice in rural Saskatchewan. Dentists in both Regina and Saskatoon also take on some of the student externs but no subsidy is forthcoming. The dentists in these two cities are encouraged to match the salary paid to externs in the rural areas — approximately \$1600.00/month. This amount includes

both the government subsidy and additional salary by the supervising dentist. All fees generated by externs are paid to the supervising dentists.)

A guideline prepared by departments in the College of Dentistry is sent to dentists hiring externs to indicate the range of preventive and treatment services they have delivered as undergraduates by Year IV end; and faculty encourage supervising dentists to consider this when determining the patients assigned for examination and/or treatment during the externship period. Both supervising dentists and dental externs often combine their skills and expertise to complete the range of treatment needs for selected patients.

Both supervising dentists and student externs, are asked for their comments, opinions or recommendations when the students return to classes in Term I, Year V. There are several sessions provided for the student/externs to share their experiences with classmates in an open forum. (Table II indicates the number of University of Saskatchewan students who have participated as externs over the last few years. Tables III and IV indicate the number of senior students in British Columbia and Alberta in a similar time frame who were permitted to associate as externs in private practice between years three and four. These are the other two provinces where senior dental students can associate in private practice in the summer months, prior to entering the final year. However, there is no government subsidy to support students in rural areas, and the programs are run by the respective dental schools rather than through the licensing body in the latter two provinces.)

Several dental school clinics in remaining provinces are used in the summer months for a limited number of weeks to provide dental services to selected population groups. Senior students are hired to provide the services under the direction of regular faculty or junior faculty hired to supervise students in these programs. Salaries would probably be paid to students and related personnel from a government grant supporting these projects. *However, the intent of the dental externship program in Saskatchewan differs from this in that it is designed to take place in a private office setting, and encourages at least half of the externs to seek the practice management experience in a rural setting.)*

Return to the Final Year — Term I — Year V

Following the voluntary summer externship experience for the majority of students

who have successfully completed Year IV, students return to formal seminars and teaching clinics for Term I of Year V. *They must:* (A) finish up the clinical requirements or a range of clinical procedures set out for them to accomplish between Year III and the end of Term I, Year V; and (B) Pass written or comprehensive oral examinations at the completion of Term I in early December; in order to be eligible to proceed to a "Student Selected Option program" in Term II.

Where students reach the end of Term I, Year V and their progress has been slow or less than satisfactory in one or more disciplines, these students will take a "Faculty Directed Program" for at least part of the Option Period in Term II. Under these circumstances students will be advised to follow the Year IV clinic schedule with assigned patient treatment in one or more disciplines, until faculty are satisfied with their competence level and/or range of clinical work completed. *They will continue to be evaluated on the same basis as the year IV students.* As these students reach the goals set for them they can then proceed for the remainder of Term II to participate in the "On Base Option program".

Term II — Year V — The Option Period

This concept was introduced in 1975 and has evolved gradually over a decade.

Students are advised at the completion of Year IV — based on their progress — if they can anticipate a "student selected option", and whether or not faculty recommends they begin to plan for an option program — on base, off base or a combination of both settings. Some of the locations/disciplines in which students have arranged option experiences in recent years, in cooperation with faculty on base and/or with professionals in schools, hospitals, public services and institutions off base are listed in Table V. As it takes some time for students and faculty to sort this out we are prepared to recommend selected students for "off base options" to allow for making the necessary arrangements, transportation, lodgings, etc. Correspondence often begins during the summer months. It is anticipated that these students will maintain satisfactory progress in Term I of Year V based on their performance over four years. There is no financial assistance to aid students who are prepared to arrange off base option programs.

The core of the "on base" option program is a "general practice component for assigned new patients", that option students will examine, diagnose, treatment plan, and must have approved by supervising faculty. Students then arrange

appointments and manage the agreed to preventive and treatment needs on their own schedule.

There is no over the shoulder supervision or daily evaluation of the work done. Full and part-time faculty assigned to supervise these students are aware of the daily treatment in progress, can (and do) look in on the treatment at any time and sign the patient's charts indicating the details of the work done each day. Consultation with faculty who are clinical specialists is arranged when necessary by patient appointment in suitable clinics; and there are some checkpoints when laboratory work and prescriptions are ready for patients treated to be sent to dental technicians on or off base. An informal exchange between students and faculty at work during the option period is encouraged; along with discussion of treatment plans in progress and any changes that may be necessary if problems arise.

Several different option experiences can be managed by the students to complement the "general practice" component on base. About 50 per cent of the students in pairs will spend a two week period with a faculty member on Northern Indian Reserves, delivering a broad range of dental services, mainly to children. However, some adults are included for emergency and essential treatment if and when time permits. (This project, supported by Health and Welfare Canada — Medical Services Branch, is in its third year and was planned to be similar to a longer standing and more comprehensive program managed by the dental school in Manitoba). The University Liability Insurance policy covers all students during the four month Option Period on or off base. (They are full time students, pay the regular tuition fee for the academic year and are engaged in satisfying a regular course listed in the University Calendar; and must do so to satisfy requirements for the D.M.D. degree.)

I have attempted in a very short period of time to try to describe two related aspects of the five year dental undergraduate program at the University of Saskatchewan — i.e. the summer externship program and the Term II Option period in the final year of the program. Combined, there is a potential seven month period (maximum) whereby students are presented the opportunity to adjust to a variety of places, people and experiences that should help to prepare them in a more realistic way for entering the profession following graduation.

The question remains: Does the University of Saskatchewan dental undergraduate experience as described, provide some components to satisfy — "Pre Licensure as an Instrument for Maintenance of Standards"?

TABLE V

**Student Placement During Option Period
(Year V — Term II — January to April)**

OFF-BASE OPTION SITES — (Outside of Saskatchewan) 1986:

- 2 weeks Evangelical Medical Missionaries Aid Society, Honduras
- 4 weeks Rambam Medical Center, Haifa, Israel
- 4 weeks Toronto Western Hospital, Toronto, Ontario
- 6 weeks University of Alberta, Edmonton, Alberta
- 6 weeks McGill University, Montreal, Quebec
- 8 weeks University of Western Ontario, London, Ontario
- 8 weeks Mount Sinai Hospital, Toronto, Ontario
- 10 weeks University of Singapore, Singapore
- 12 weeks Cancer Control Agency, Vancouver, B.C.
- 12 weeks University of Adelaide, Adelaide, Australia
- 12 weeks Guys Hospital, London, England

1985 (4-12 weeks):

- University of Alabama, Birmingham, Alabama
- Health Sciences Center, University of Texas, San Antonio, Texas
- University of Western Ontario, London, Ontario
- Cancer Control Agency, Vancouver, B.C.
- Guys Hospital, London, England
- University of Sydney, Australia
- University of Dundee, Scotland
- University of British Columbia, Vancouver, B.C.
- School of Dental Therapy, Somerton Park, Australia
- University of Alberta, Edmonton, Alberta
- University of Adelaide, Adelaide, South Australia
- University of Manitoba — Program in Churchill, Manitoba
- University of Witwatersrand, South Africa

1984 (4-12 weeks):

- University of Manitoba, Churchill, Manitoba
- University of Witwatersrand, South Africa
- Oregon Health Sciences University, Portland, Oregon
- University of Adelaide, Adelaide, Australia
- Cancer Control Agency, Vancouver, B.C.
- UCLA, Los Angeles, USA
- USC, California

1983 (4-12 weeks):

- University of Bonn, Bonn, West Germany
- University of Manitoba, Hodgson, Manitoba
- University of Toronto, Toronto, Ontario
- Health and Welfare Canada, Klemo, B.C.
- Medical Group Missions, Honduras
- University of Western Ontario, London, Ontario
- University of Manitoba, Churchill, Manitoba

1983 (4-12 weeks):

- University of Witwatersrand, South Africa
- Laval University, Quebec City, Quebec
- University of Adelaide, Adelaide, Australia
- School of Dental Therapy, Somerton Park, Australia

ON-BASE OPTION OPPORTUNITIES

(Within Saskatchewan) 1986 (2-15 weeks):

- Anaesthesia, Saskatoon Hospitals
- Battlefords Indian Health Centre, Battleford
- Ear, Nose and Throat, Regina
- Hospital Dental Department, University Hospital
- Hospital Emergency
- Northern Saskatchewan Program — Northern Indian Reserves
- Oral Surgery, College of Dentistry
- Plastic Surgery, College of Dentistry
- Saskatchewan Dental Plan, Saskatchewan Locations
- Biopsy Specimens, College of Dentistry
- Cancer Clinic, College of Dentistry
- Oral Medicine, College of Dentistry
- Orthodontics, College of Dentistry
- Periodontics, Office Rounds, College of Dentistry
- Radiology, College of Dentistry
- Speech Pathology
- Lab Sessions with Technicians
- Child Psychiatry, College of Medicine
- Endodontics, College of Dentistry
- General Dental Practice, College of Dentistry
- Periodontics, Research
- Research in Oral Biology, College of Dentistry
- Restorative Student Instructor, College of Dentistry
- Sessions with Faculty, College of Dentistry

1985 (2-15 weeks):

- Anaesthesia
- Biopsy Specimens
- Cancer Clinic
- Clinical Dental Care Component
- Ear, Nose, Throat
- Hospital Dental
- Hospital Emergency
- Lab Sessions
- Northern Saskatchewan Program
- Operative and Dental Materials
- Oral Biology
- Oral Medicine
- Oral Surgery
- Orthodontics
- Plastic Surgery
- Saskatchewan Dental Plan
- Sessions with Faculty
- Speech Pathology

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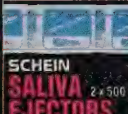
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 - (b) Option component in the final year — D.M.D. program — University of Saskatchewan.
 - (c) Communications with faculty who accepted role of "Option Program Coordinator" (both past and present).

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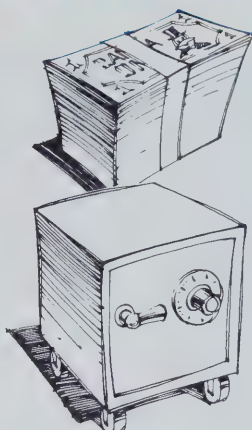
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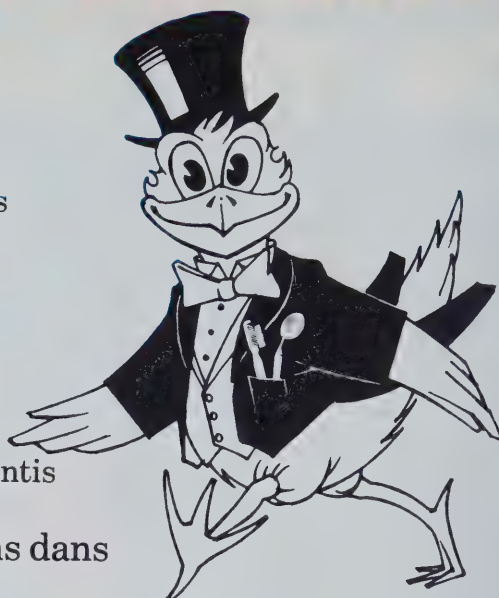
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EXAMINATIONS AND PROCEDURES FOR LICENSURE (COMPETENCY ASSURANCE)

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Coordinating Council Professional Examination Board in Dentistry

Faculty of Dentistry,

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INTRODUCTION

In all provinces in Canada there is legislative provision that only licensed members of the dental profession may engage in the practice of dentistry. No person can be licensed that has not met certain specified educational and credentialing requirements. The primary objective of this process is to give assurance to the public that a licensed dentist has demonstrated an acceptable level of professional competence at the time of licensing.

A. What is Professional Competence?

The standard dictionary definition of competence makes reference to adequacy of abilities to perform a specified task or assume the role of a specified position. A person is assumed competent to the degree that he/she has acquired the requisite knowledge and skills.

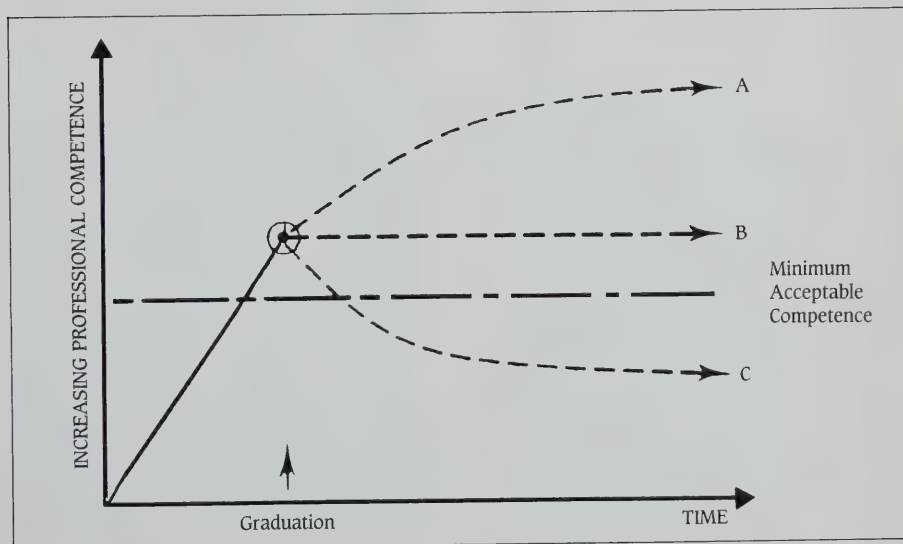
Professional competence however has an added dimension.¹ A competent dentist must not only "know", and be able to "do", but must also be motivated by a desire to fulfill his professional responsibilities as well as it can be done. Professional competence involves attitudes, morals and values, judgement and accountability in addition to knowledge and skills. It is aimed at meeting the mental, biological, socioeconomic and dental needs of the patient.²

Professional competence implies a career-long pursuit of excellence. It is a personal matter, an individual objective. In practical terms, the "true professional" is never complacent about the level of excellence which has been achieved.

If all members of the dental profession were "true professionals" there would be little need for educators and members of regulatory agencies to be unduly concerned for those who may enter the profession at a marginal level of competence because the level of competence would be improving as the individual member progressed in his/her

career. Unfortunately, experience teaches that not all members of the dental profession continue to improve their professional competence. **Figure 1** illustrates the possibilities in terms of continuing competence following initial licensing of a new dental graduate.

The presupposition is that current curricula adequately prepare students for independent contemporary dental practice. This assumption has been challenged by dental educators, new graduates and current students.³⁻⁵ The perceived inadequacies have many reasons, but students



express the view that the mechanistic and quantitative approach to dental education does not adequately prepare them to care for large and diverse groups of patients and manage the operation of a dental office.⁶ Actions taken in Sweden and recommendations made by the Nuffield Foundation in England and by the AADS Planning Committee in the U.S.A. suggest that the concern expressed above is rather widespread.⁷ Educators and licensing bodies therefore need to review how effectively they are fulfilling their two-fold responsibility.

1. A responsibility to ensure that all members entering the dental profession have adequately demonstrated a level of professional competence which meets at least the minimum competence requirement of the profession (**Figure 1**).

2. A responsibility to identify and weed out those members of the dental profession whose competence declines following licensing and reaches a point below the minimum accepted standard (**Figure 1C**).

B. What are the Problems in Continuing Competency Assurance?

For those members of the profession who lack the inner motivation to pursue excellence there is currently no effective regulatory means for continuing competency assurance; the best that can be done is to promote it. Means that are thought by some to be effective in achieving this objective are mandatory continuing education and peer review systems. The limitations inherent in such programs are severe, the most significant being that forced continuing education is not effective in changing the way that the dentist does things in his/her practice, and effective peer review is too costly to be practical.

Continuing competency assurance in dentistry therefore is hindered by two major problems.

1. Most new graduates move from the supervised training environment of the educational system directly into independent practice, which places many new and severe marketplace demands on them.⁴ As the recently acquired skills in performing professional judgement and clinical treatment procedures are not adequately habituated, there will tend to be a decline in standards in order to cope with the demands of the practice (**Figure 1C**). Marginally competent graduates may therefore be functioning below the minimum acceptable standard of competence in their day-to-day practices.

2. Professional Regulatory Boards generally put more emphasis on licensing than on peer review and enforcement. Regulatory systems, including continuing educa-

tion, are generally only marginally effective in ensuring continuing competence of the membership and the usual disciplinary procedures are effective in weeding out only the grossly incompetent. Any effort to impose more regulations with the objective of competency assurance would probably result only in increased cost of the regulatory systems with resulting increased costs of professional services to the public.

A more effective approach to continuing competency assurance may be to ensure that at the time of initial licensing the member has demonstrated an acceptable standard of competency in a setting which as nearly as possible represents the private practice in which he/she will be functioning. This would remove at least some of the major reasons for declining competence immediately following initial licensing as the new graduate moves from the educational setting to the private practice setting. Such a period of training/evaluation is inherent in the precensure concept. It recognizes that the initial certification of the graduate's competence is of crucial importance to the system if professional standards of competence are to be maintained.

C. How Can Regulatory Bodies and Educators Work Towards Improved Competency Assurance?

Competency assurance begins with the process of selecting and admitting students into the undergraduate dentistry program. Although Canadian Dental Schools have had adequate applicant pools from which to draw, statistics show that about 11 per cent of students withdraw voluntarily or are required to withdraw due to poor academic performance.⁸ Another undetermined percentage of students are successful despite incompetent performance during the course of the program.⁹ Clearly, the evaluation systems used at the pre-admission level and performance evaluations used during the course of the predoctoral program are to some degree unreliable and result in at least some students meeting professional licensing requirements without adequate development and demonstration of professional competence. The fundamental problem may then be inherent in the evaluation systems used by Faculties for purposes of selecting students for admission to the program, and thereafter determining who is eligible for graduation. The problem for the licensing authority is that there is an assumption that the new graduate is able to use the cognitive and clinical skills demonstrated in the educational setting in a competent manner in the private practice setting. There may be significant pitfalls in this assumption, especially when the educational program

has not given adequate attention to those aspects of professional competence which go beyond scientific knowledge and clinical skills.

The proposal put forward in this paper is that dental educators and licensing authorities place more emphasis on a demonstrated professional competence as a prerequisite to licensing of new graduates. The proposal is based on several pre-suppositions.

1. Should a pre-licensure training/evaluation period be introduced, it will be developed on the foundations laid in the predoctoral program. It should avoid repeating the testing done in dental school. The program planning and evaluation must be progressive, beginning with the initial selection of dental students for admission to the program and terminating with licensing of the graduate.

2. The precensure part of the program would be a responsibility shared by educators, private practitioners, and the licensing authority. As licensing is a provincial matter the precensure program would be a provincial rather than a national program, although not ruling out the necessity for national guidelines.

3. The primary objective of the program would be to allow students to develop their understanding of the social and economic setting within which dentistry is practiced and, within this context, to enhance and refine their knowledge and skills in order to competently conduct a comprehensive dental practice.

4. Increasingly, graduating students are choosing to assume career roles other than as solo practitioners. This has implications for the predoctoral program, and means that precensure programs with different emphasis would be necessary in order to accommodate new graduates with various specific career goals.

D. Stages and Types of Evaluation

The objective of dental education is to prepare an individual to be a professional dentist. As stated earlier, professionalism has implications beyond acquiring a defined knowledge base and specified clinical skills. A dentist is a competent professional to the degree that his/her knowledge and skills can be applied effectively to treating patients with dental needs. The purpose of evaluation of the student is to ensure that that objective is being achieved and, before the graduate is licensed, that professional competence has been demonstrated.

The following proposal for evaluation recognizes that there are several crucial stages, which have a natural progression, which must be achieved by the dental stu-

dent. The evaluation at each stage is intended to ensure that the student has achieved the requisite skills to progress to the next level of learning. The method of evaluation at each level will be different, depending on the skills which are being tested.

Stage 1 – Admissions Evaluation

The increasing cost to students of dentistry and the diminishing returns on their educational investment suggests that increasingly students who have the ability to pay, rather than those who are properly motivated, will be seeking admission to dentistry programs.¹⁰ For the purpose of ensuring that dental applicants have a proper insight into the profession of dentistry and in order to assist them with developing a rational basis for their career decision, predental career programs should be available in all Faculties of Dentistry. These could be modelled after the program currently given in Eastman Dental Centre in Rochester, New York.⁶ The addition of such a program to current selection procedures may be effective in circumventing the problems which arise when first year students become disillusioned with dentistry as a career choice.

Stage 2 – Knowledge Base Evaluation

Despite heroic efforts by curriculum committees to move away from the traditional heavy emphasis on basic biological sciences in the first two years of the dentistry program, it is generally accepted that a certain minimum knowledge base in the basic sciences must be mastered before the biological requirements of clinical procedures can be adequately appreciated. If we also accept that dentistry in the 1980s is no longer predominantly an art, but a medical science with its own theories, principles, facts and methods,² it is of vital importance that the student of dentistry is able to demonstrate that he/she has acquired the knowledge base on which the treatment principles and methods are based before such treatment methods are learned.

The proposal is that comprehensive written examinations should be held at the conclusion of the second year of a four-year dentistry program. The examination would be discipline oriented rather than subject oriented. As students by the end of second year have already been introduced to a variety of dental treatment procedures in the preclinical laboratories, the objectives of the examinations would include evaluation of the student's understanding of the relationship between scientific fact and theory and clinical methods.

In order to ensure total objectivity of the examinations some form of external examiner involvement may be beneficial. Only students who successfully complete the comprehensive examinations would be promotion eligible.

Stage 3 – Preclinical Skills Evaluation

All clinical practice foundations are laid at the preclinical level and are completed no later than by the end of the third year of a four-year program. It is proposed that at the end of the third year a comprehensive pre-clinical evaluation is introduced and that no student is permitted to advance to the senior year who has not satisfactorily completed and passed all of the strict evaluations at this level. The objective of the evaluation is two-fold.²

- a. To determine mastery of the various clinical procedures taught in the preclinical laboratories. A rigorous evaluation at this level is appropriate as the evaluation process can be controlled and standardized. The student's ability to effectively use the various patient records and prescription forms, which will be used in the patient treatment clinics, could also be evaluated.
- b. To determine a student's competence in evaluating treatment plans and treatment procedures undertaken by himself and/or others. Training the student in reliable self-assessment is essential in continuing competency assurance.

Stage 4 – Clinical

Providing the student has satisfactorily demonstrated competence in the Stage 2 and Stage 3 evaluations, the emphasis in the final year of the program can shift away from a preoccupation with the mechanics of dental treatment and with numerical requirements and focus on learning and evaluating patient management and comprehensive care concepts. The emphasis is on teaching and assessing competence in applying the learned cognitive and clinical skills to the treatment of patients.⁵ Such competencies are best learned in a setting where students are assigned patients for comprehensive care and are guided through all phases of the diagnostic procedure, the treatment planning and the treatment procedures, but assuming increasing responsibility for these aspects of patient care as he/she progresses in the program. Competence in performing the mechanics of treatment can be assumed if the Stage 3 assessment is reliable. Where students in Stage 4 show an unacceptable level of clinical performance the problem may relate to an inability to translate the learned mechanical skills to the clinical treatment situation. The remediation must then focus on patient

management factors rather than on the mechanical aspects of treatment.

In those cases where it becomes apparent that Stage 3 competencies have not been adequately learned, the student may be required to return to the Stage 3 learning process.

The requirement for graduation would simply be that the student demonstrates an appropriate level of professional competence in applying the skills learned in the preceding stages to the comprehensive care of a limited number of selected patients.

Stage 5 – Professional Competency Assessment

Ozar suggests that it is easy for dental educators and those who assume responsibility for licensing of new graduates to forget how long it takes an experienced clinician to develop his habitual professionalism.¹¹

Certainly it is not realistic to assume that a new graduate who has provided limited treatment to 40-50 patients in a restrictive educational setting will have developed the necessary skills in independent judgement, reliable self-assessment, effective patient management and office management to the degree that independent dental practice can be undertaken with assured competence.

The arguments which support a prelicensure learning/evaluation period for dentistry are similar to those put forward by other professions which require a work-experience and peer-assessment before the independent practice privilege is earned. Notable among these professions are medicine, law, pharmacy, engineering and accounting. The introduction of an internship program for new graduates of the Faculty of Education is currently being considered in Alberta.

The essential requirements of a prelicensure program for dentists are the following.^{6,12}

1. The program must be consistent with the career role which the candidate will be entering upon licensure. As a hospital residency program may not be the most appropriate program for an individual planning to establish an independent general practice, general practice residency type programs will also be required.
2. The primary objective of each program is the refinement and enhancement of knowledge and skills necessary to conduct the kind of practice which the dental intern has chosen with competence. This objective can be achieved most effectively in a setting which simulates the planned future practice.
3. The quality of the program and the competence of the dental intern must be evaluated in the context of the programs' stated purposes and objectives and would pay attention to the following:

a. Structure and Process Oriented Evaluation

The predetermined physical, professional, and patient resources necessary to provide an adequate program must be in place. This would require that appropriate guidelines be established and that an accreditation-type committee be in place to approve new programs and periodically assess the status of continuing programs.

As the success of a prelicensure program would rely heavily on members of the dental profession not involved in the predoctoral program, proper orientation of prelicensure preceptors would be required in order that the methods and standards established in the predoctoral program were followed in the prelicensure program. This ensures that the standards of professional competence taught are consistent throughout the student's educational experience.

b. Product-Oriented Evaluation

A program is no better than the quality of patient care delivered in it. Adequate quality is defined as "care that is at a high technical level, is appropriate to the patient, is provided efficiently, includes prevention, and results in a high rate of case completion and recall for maintenance care."¹²

The evaluation model used must therefore be effective in assessing the quality of patient care. An integral part of this evaluation is how the treatment is perceived by the patient. The spectrum of services provided would also be addressed in the evaluation.

As an essential requirement of continuing competence is reliable self-assessment, the evaluation by the preceptor(s) would include the evaluation of the intern's ability to critically review the effectiveness of previously performed treatment on recall patients.

In conclusion, the following is presented

as a procedural model for prelicensure for those graduates wishing to enter independent practice.

1. An independent practitioner or a group practice would be approached to determine a willingness to participate in the prelicensure program. A positive response would be followed by an assessment of the practice and preceptor(s) for suitability by an accreditation-type team. The major criteria for suitability would be:

a. availability and suitability of physical facilities

b. currency of patient management procedures, adequacy of patients and variety of treatments performed in the practice

c. the willingness of the dentist(s) and staff to commit themselves to achieve the objectives of the program

2. All selected preceptors would attend an orientation program in which the program objectives and evaluation procedures would be learned.

3. The student intern(s) would be assigned to their preceptor(s).

4. At the completion of the specified program period the preceptor(s) would prepare a written evaluation, identifying strengths and weaknesses of the student intern. The intern would return to the Faculty of Dentistry for a comprehensive prelicensure evaluation consisting of two parts.

PART I — A written examination with emphasis on diagnostic, treatment planning and patient management concepts.

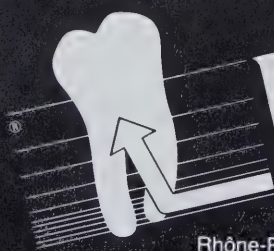
PART II — A clinical exam in which several specified treatment procedures would be performed on an individual patient. The patient would be preselected by the candidate's preceptor(s) in consultation with the examiners.

5. Successful candidates would be eligible for licensure.

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A FOREWORD

INFECTION CONTROL

IS IT NECESSARY?

J. Hardie, BDS, MSc, FRCD(C)
Chairman, Editorial Board

Many recent dental publications contain at least one article on infectious diseases and their potential for transmission within the dental environment. Naturally, young dentists are concerned that such diseases may adversely affect their developing practices and growing families; while older dentists, many of whom are perfectly healthy, wonder if the current concerns are justified. Obviously there is a need to adopt a rational perspective when discussing infection control, and to implement its practice based upon effective techniques.

Many oral and nasal microorganisms are vegetative bacteria. Most disinfectants will destroy such organisms when they contaminate instruments and work surfaces. Therefore it is not surprising that dentists have had a somewhat complacent attitude towards infection control.

Recent advances have demonstrated the significance of viruses as agents of human disease. Many viruses are present in blood and saliva, are harder to destroy than vegetative bacteria, may produce subclinical or asymptomatic disease, and are a definite cause of transmission of disease within the dental environment. During the past five years there have been dramatic increases in the incidence of AIDS, Hepatitis B, and Herpes Simplex infections —

viral diseases of concern to the dental profession.

Apart from the realization of the significance of viral diseases there are other reasons why infection control is relevant. An increasingly significant number of ambulatory patients have deficient immune defence mechanisms as a result of transplantations and cancer chemotherapy. These patients are very susceptible to diseases, and they do require protection from even minor infections present among dental staff. The legal profession is aware of the potential for transmission of disease during dental treatment, and violation of accepted procedures might result in litigation. These facts demonstrate that infection control is necessary and that it should be practiced according to current knowledge and accepted standards.

This issue of the Journal contains two articles on infection control. The first by Epstein and Mathias offers a review of infectious diseases and practical procedures for the prevention of disease transmission. The authors state that gloves need not be changed between patients, provided the gloves are washed in an acceptable manner. However it must be stressed that manufacturers consider gloves to be disposable items and do not advocate their repeated use. At present there is no ideal surface dis-

infectant but the iodophors are recommended because they are effective; and less toxic, cheaper, and easier to handle than bleach or glutaraldehyde compounds. A new phenolic compound, Dentaseptic, has been recommended by the American Dental Association as a suitable immersion disinfectant. It is cheaper and less toxic than the glutaraldehydes but it is not a chemical sterilant.

The second article by Saginur and Hardie describes the clinical manifestations of herpes simplex infection, and the consequences of transmission of the virus to dental personnel. It emphasizes the usefulness of gloves as a barrier protection.

The implementation of effective infection control is a frustrating discipline. Although the costs are not excessive, the benefits are not readily visible, and the standards are constantly changing. Nevertheless, adequate infection control is the professional responsibility of every dentist who values personal health and that of family, staff, and patients.

To allow Canadian dentists to accept this responsibility with knowledge and understanding, this Journal will publish relevant information as it becomes available. The articles in this issue are examples of this mandate.

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INFECTION

CONTROL

IN DENTAL PRACTICE

DEMANDS OF THE 1980'S

J.B. Epstein, DMD, MSD
R.G. Mathias, MD, FRCP(C)

ABSTRACT

Understanding infectious disease is critical in developing practical and effective infection control procedures. A review of the infectious diseases of concern, and practical infection control procedures in dental practice is presented. Concerned professionals and the public are demanding review of present infection control procedures to ensure that effective protocols are in use.

SOMMAIRE

Il est impérieux de comprendre les maladies infectieuses pour pouvoir établir des procédures de contrôle pratiques et efficaces. Voici un compte rendu des principales maladies infectieuses dont il faut se méfier ainsi que des procédures pratiques pour les juguler. À l'heure actuelle, les professionnels et le public avertis demandent qu'on révise les procédures pour réduire les risques de contamination et s'assurer que les règles à ce sujet sont proprement suivies.

The problem of infections in medical and dental practice has always been present. There has not always been sufficient awareness to lead to recognition of the problem and to take steps needed in order to control the risk of infection. From time to time attention is directed at specific infectious diseases that lead to concern for a transmissible illness, such as Hepatitis B (HBV) and presently acquired immune deficiency syndrome (AIDS). The anxiety in the professions and the public due to AIDS has resulted in renewed interest regarding infection control. Understanding principles of infection and developing practical standards of infec-

tion control are needed in order to allow the health professions to manage the demands of patient care.

The development of infection is a multifactorial process. Interaction between the infectious agent, the environment and the host determine the outcome of exposure. The virulence of the pathogen, dose of exposure and the route of exposure determine the challenge to the host. Host resistance to infection such as age, underlying illness and host defences in general, and immunity related to the potential pathogen, determines the outcome of exposure. The outcome of exposure is unpredictable because of complex interactions between the host, and the agent. The result of infection is a spectrum of disease from clinical, symptomatic cases to subclinical disease with few or mild symptoms, which may or may not be diagnosed, to no disease at all.

Health care workers are at risk of exposure to infectious agents by direct contact with blood and other body fluids, by exposure to aerosols, and by transmission transferred on objects such as instruments (fomites). Transmission of infectious disease to patients has been documented in dental practice, including infection with HBV and Herpes Simplex Virus infection (HSV) (Fig. 1)¹⁻³. Many viral infections, including HBV and AIDS, are transmissible before signs and symptoms of the disease occur. In fact, asymptomatic carriers of the conditions, in whom symptoms and signs are not recognized or do not develop, are perhaps more infectious than patients who develop clinical disease⁴. Cytomegalovirus (CMV) infection may result in acute viral illness with fever, rash, CMV mononucleosis and/or mucositis of areas of the gastrointestinal tract. Maternal infection during pregnancy may account for mental retarda-

tion in 1 to 3 per cent of infants⁵. CMV may be transmitted by blood and body fluids and can be transmitted to health care workers. Epstein Barr Virus (EBV) is the agent of infectious mononucleosis and has been associated with some cancers, including nasopharyngeal carcinoma and Burkitt's lymphoma. Hepatitis A virus (HAV), measles, mumps and other respiratory viruses including cold and influenza viruses may be spread in the office environment. Bacterial diseases that are of specific concern include tuberculosis, diphtheria, syphilis and gonorrhea.

The concern about AIDS transmission in the health care environment needs to be placed in perspective. Two cases of probable occupational transmission of HTLV-III have been identified in health care workers, in followup of 1758 cases of parenteral exposure conducted by the Center for Disease Control, Atlanta (0.11 per cent)⁶. This confirms the low risk of transmission of HTLV-III in the health care setting and compares to 26 per cent of cases of transmission of HBV in needle stick exposures⁷.

FIGURE 1

Infectious Agents of Concern in Dental Practice

Viral	
CMV	HTLV III/LAV
EBV	Herpes I, II
Hepatitis: A	measles
B	mumps
Delta	respiratory viruses
non A non B	neurotropic viruses
Bacterial	
syphilis	tuberculosis
gonorrhea	diphtheria

FIGURE 2**Patient Evaluation**

History	— at risk group — occupation — infectious illness — signs/symptoms
Examination	— at risk group — signs of infectious illness
Laboratory	— based upon history/examination — culture (bacterial/viral/fungal) — serologic study — special tests
Consultation	

FIGURE 3**Personal Protection**

- handwashing (disposable towels)
- current immunization record
- barrier techniques
 - gloves
 - mask
 - protective eyewear
 - protective clothing (clinic uniform/smock/jacket)

FIGURE 4**Office Sanitation**

- surface preparation
 - protective covers — impervious
 - instrument tray/work area
 - light handle/air water syringe
 - surface disinfectants (disposable towels)
 - glutaraldehyde
 - chlorine (0.1 – 1% NaOCl)
 - iodophor compound (Betadine)
- high volume suction, saliva ejector
 - sterilize or dispose tip
 - run water 2 minutes after each patient
 - disinfect (0.1% NaOCl)
- air/water syringe tip
 - sterilize
- disposal
 - closed plastic bag

FIGURE 5**Handling Sharps**

Needles: No resheathing, no bending
Dispose all sharps in puncture resistant container

HBV is hardier and more infectious than HTLV-III⁸. An understanding of infectious disease, and the infections of concern is mandatory in order that practical and effective infection control strategies can be developed for application in practice.

Patient Evaluation (Fig. 2)

A history of signs and symptoms of the infectious diseases of concern should be completed for each patient (Fig. 2). However, a careful history of HBV infection, has not been shown to predict the actual history or presence of markers of the infection^{9,10}. The lack of reliability of the health history may be due to subclinical infection, lack of a specific diagnosis, and the carrier state following asymptomatic infection¹¹⁻¹³. Patients with infectious disease may provide an accurate history. However, those with asymptomatic infection will not be able to do so. These same problems will occur in relation to AIDS as has been seen in HBV. Presently, the AIDS patient may be identifiable, however, those with HTLV-III virus and few symptoms, or those without symptoms will not be identified. Testing for HTLV-III antibodies is available. However, a positive test indicates exposure to the virus, and does not imply that AIDS is present or will necessarily develop.

At the present time this test can serve as a marker of potential infectivity. Submission to this test is presently controversial, and due to social factors may be refused, or the results may not be shared with other individuals including health care workers. Therefore, in taking a history, the health care worker should identify symptoms of the infectious diseases of concern. Signs of infection should be noted on examination. Oral lesions of the various infectious diseases and their sequelae should not be examined without wearing gloves. Laboratory tests may be indicated by the history and examination. These may include serologic testing for markers of HBV or HTLV-III, bacterial and viral culture, and other tests. History or examination may also indicate the need for consultation.

The importance of practical methods of infection control is emphasized because of the difficulty in identifying the patients capable of transmission of an infectious disease. The problem of infection control is not in management of patients identified with infectious disease, but in the large proportion of the population who do not demonstrate signs or symptoms of infection. It is most appropriate that all patients be managed as though they are capable of transmitting an infectious illness. Therefore, it is necessary that methods of infection control be effective and practical so that they can be used in all clinical procedures.

Personal Protection^{1,8,9,14-22} (Fig. 3)

Health care workers should maintain an up-to-date immunization record. Individuals should consider the need for vaccination against measles, rubella, influenza, mumps, diphtheria, tetanus, polio and HBV. Testing for tuberculosis is recommended yearly or following exposure.

Barrier techniques should be employed in all patient contact.

An agent that cannot reach the host cannot cause infection. The use of gloves is the most important of the barrier techniques. Gloves have been shown to be effective in preventing HBV in dental personnel⁹ and to be effective in preventing transmission of HBV to patients from HBV carrier dentists¹. Gloves may not need to be changed between each patient, as bacteriological and virological study has shown that washing gloves with germicidal soaps is satisfactory²³. Thorough handwashing after removal of gloves should be completed. The other barrier techniques, protective eyewear, masks, and protective clothing have not been shown to be necessary to protect against HBV or HTLV-III, but should be used to protect against splatter and debris.

Office Sanitation^{8,9,12,14-22, 24-27} (Figs. 4, 5, 6)

Surfaces can be covered with disposable materials to reduce cleanup time. Trays and countertops can be covered with disposable sheets (ie.: dental bibs, plastic), x-ray equipment covered with aluminum foil, or plastic wrap, light handles covered with foil or small plastic bags. Unprotected, contaminated surfaces with blood and saliva spills, can be disinfected with chemical agents. Chlorine solutions may be prepared as dilutions of household bleach (1 part bleach to 10 parts water). The bleach solution should be prepared daily as it tends to be unstable. The solution may result in irritation of the eyes, and skin, has an unpleasant odor, may damage colored surfaces and clothing and can corrode metals. Glutaraldehyde solutions are effective surface disinfectants. Their use is limited due to irritation of contacted skin, irritating vapors and relative cost. Iodophor agents are easily mixed with water and most commercial preparations do not stain readily. A convenient method of application is to saturate pads to clean specific areas. When the liquid is dry, the residue can be removed by wiping with 70 per cent alcohol.

The normal oral flora has not been demonstrated to pose a risk to the operator or other patients. No evidence of aerosol or oral transmission of HBV or HTLV-III has been demonstrated²⁴⁻²⁷. Aerosols generated

during dental treatment may carry particulate matter, metals from dental materials and HSV virus may pose a risk. For these reasons aerosols should be minimized during dental treatment. The placement of a rubber dam and the use of the high volume suction will reduce aerosols. Do not run the air and water of the three-way syringe together; use the water, then dry with air.

The dental suction and saliva ejector tips should be sterilized or discarded. The suction should be run in water after use to clear the lines. The lines should be run with a dilute bleach solution after treatment of known patients with infection and once per week. The air-water syringe tip should be removable and sterilized. All disposed items should be placed in plastic bags and tied. As most needle stick injuries occur when the needle is resheathed, the needles should be disposed uncapped. An alternative method to reduce the risk of a needle stick is to cap needles using an instrument or a block to hold the cap into which the needle is placed, so that the cap is not held by hand. Needles and other sharp instruments should be disposed in puncture-proof containers (i.e. empty milk cartons).

Special Dental Considerations^{13,14,18-22} (Fig. 7)

Considerations are required for infection control in dental radiology. Exposure to saliva occurs during the taking of dental radiographs, therefore gloves should be worn. X-ray film holding devices should be disposable or sterilized. Handling of x-ray film packets should be with gloves. The film packaging should be disposed of in the standard fashion. The cone of the x-ray machine can be covered with plastic wrapping to allow rapid clean up.

Attention should be directed to the provision and management of dental prostheses and the dental laboratory^{18,20,28}. Prosthodontic, and orthodontic instruments and devices should be disinfected in the same manner as other instruments. This includes impression trays, shade/mold selection guides, and devices received from the laboratory. All intraoral procedures should be performed wearing gloves. Impressions should be rinsed after being made to remove debris and reduce the numbers of organisms. Prior to working with the impressions or models, disinfection of the item is suggested^{20,28,29}. Dimensional stability of zinc oxide and eugenol, silicone rubber and polysulfide impression materials was seen following 16 hours of exposure to glutaraldehyde. However, significant dimensional change occurred with alginate, and polyether materials. Alginate and silicone rubber were stable with exposure to

hypochlorite. If disinfection of the impression is accomplished, any subsequent procedure will not require special considerations regarding infection control. If this is not accomplished, potential contamination and exposure of the laboratory surfaces, materials, and personnel may occur. Gloves should be worn prior to disinfection of the item when handling or working with it. Prostheses and appliances can be disinfected with an iodophor scrub or soaking in a dilute chlorine solution. In the dental office, if prostheses and appliances are not disinfected prior to procedures such as adjusting, and polishing, exposure and contamination may result. When using a lathe protective eyewear and a mask will provide barriers against aerosols and debris. Pumice may be prepared with a mild disinfectant, five parts household bleach, three parts green soap and 100 parts water²⁰. Rag wheels should be heat sterilized. In order to ensure that appliances and prostheses are disinfected prior to delivery to the patient, dentists should check that the laboratory has taken the appropriate precautions.

Instrument Disinfection and Sterilization^{8,13-22,30-32} (Figs. 8-11)

Sterilization is the elimination of all microbial life. Disinfection is the quantitative reduction in numbers of micro-organisms. The most important step of disinfection and sterilization of instruments is cleaning and debridement. Debridement will reduce the numbers of organisms and remove debris that can allow continuing viability of micro-organisms by stabilization against subsequent procedures. Because of a high risk of punctures, handling and cleaning of the instruments should be done while wearing heavy household gloves. Instruments can be scrubbed with a detergent soap or a 1 per cent iodine scrub. The use of ultrasonic cleaning with a suitable nonrusting germicide provides a high level second stage debridement. Instruments should be inspected for debris before transfer to the disinfection or sterilization process.

The selection of the method of disinfection or sterilization depends on the instrument and its construction and material. A guideline for the choice of method is given in **Figure 11**. Sterilization procedures include: steam autoclave, formaldehyde-alcohol pressure (chemclave), heat and ethylene oxide gas sterilization. In the dental office the primary methods are the steam autoclave and the chemclave. These methods offer advantages over chemical agents. The advantages of steam or formaldehyde-alcohol methods include the ability to verify sterilization and, generally, the minimum time required. Verification of

FIGURE 6

Minimize Contamination and Aerosols

- rubber dam
- high volume suction
- do not run air/water syringe together, use water then air

FIGURE 7

Dental Laboratory Considerations

- items clearly labelled
- transport in plastic bag/sealed container
- handle with gloves
- remove debris off impression, disinfect/sterilize before pouring
- work on prostheses - first scrub with iodophor or if non metal appliance soak in 1% NaOCl
- polishing - gloves, mask, protective clothing and eyewear
- pumice - mix with disinfectant (5 parts NaOCl, 3 parts green soap, 100 parts water)
- rag wheels - chemclave/autoclave
- bristle brush - glutaraldehyde
- disinfect/sterilize prosthetic appliances before delivery to patient

FIGURE 8

Instrument Sterilization

1. Cleansing/debridement
 - rubber gloves, scrub detergent, iodophor
 - ultrasonic
2. Heat sterilization
 - chemclave/autoclave
3. Cold sterilization
 - 2% glutaraldehyde (7-10 hours) (probably an overestimate of time)

FIGURE 9

Instrument Disinfection

1. Cleansing/debridement
 - rubber gloves
 - scrub detergent/iodophor
 - ultrasonic
2. Disinfectant (10-30 minutes)
 - 2% glutaraldehyde
 - 1% sodium hypochlorate
 - iodophor 1%

sterilization is important as a machine can be overloaded, or inadequately maintained, resulting in the time or temperature required not being attained. If instruments are wrapped or packaged the material must be compatible with the method of sterilization used. The indicator tapes available show that temperature has been reached but, does not indicate that sterilization has been achieved, as the temperature may not have been maintained for sufficient time. Spore test strips are the best quality control for sterilization. If the instrument or material will not tolerate these methods, chemical agents are used. Sterilization confirmed by spore test strips on a regular basis will kill all infecting agents including the HB and HTLV-III viruses³⁰⁻³². These techniques will permit the dentist to reassure his patients.

Use of chemical agents requires cleaning and debridement of the instruments, adequate immersion time, and active solutions. Verification of sterilization in the dental office is too complex for routine use. Solutions must be prepared according to manufacturer's instructions, and changed at regular intervals. Organic debris will prevent contact with the organisms and can inactivate the solution. Chemical agents accepted by the American Dental Association are 2 per cent glutaraldehyde, iodophores (1 per cent iodine content), and sodium hypochlorite (1 to 10 per cent solution). These agents result in disinfection in 10 to 30 minutes of exposure. Present guidelines for sterilization with 2 per cent glutaraldehyde solutions state 7 to 10 hours of exposure is required. Culture of the Hepatitis B virus is not possible in vitro, therefore these guidelines have been developed by identification of Hepatitis B surface antigen (HBsAg). The HBsAg protein is very stable as demonstrated by the procedures used in production of the hepatitis B vaccine (Heptavax Vaccine). These procedures

inactivate all known viruses, but do not affect HBsAg. Two animal studies show that HBV is inactivated with exposure to disinfectant chemicals^{26,27}. HBV was exposed to a variety of disinfectants including sodium hypochlorite, an iodophor and glutaraldehyde, for 10 minutes at room temperature. HBsAg was not detected following exposure to hypochlorite and glutaraldehyde, but, was measured with iodophor and isopropyl alcohol. Viral mixtures were injected into chimpanzees, which did not develop infection with HBV, but, untreated virus led to serological evidence of HBV in these animals. The chemical agents used were effective in inactivating HBV and preventing transmission. Inactivation of HBV and all micro-organisms will occur before dentaturing of HBsAg. This indicates that the present guidelines may be revised in the future to recognize the problem of the stability of the antigen, and that microbial and viral inactivation occurs under less stringent conditions. HTLV-III virus, the cause of AIDS, is quite labile and will be killed with the standard protocols of instrument disinfection in place²⁸.

CONCLUSION

Personal protection includes current immunizations, and the use of barrier techniques when contact with blood and body fluids occurs. The use of gloves to act as a barrier is the present standard of care. Office sanitation with use of the appropriate disinfectant solutions, surface covers, and disposal should be reviewed. Disposables should be used whenever possible. Instrument sterilization using steam autoclave, or formaldehyde-alcohol vapor are the methods of choice when the instrumentation permits these methods. Chemical agents are the second choice. The agents that can be used are glutaraldehyde, sodium hypochlorite, and iodine based compounds.

The understanding of the problems of

infection control can be applied to develop practical solutions. Health care professionals should feel secure in the ability to treat both known and unknown carriers with a standard protocol of rational and effective infection control. The needs of dentistry and medicine and understanding of infectious disease will result in changes in patient care that will benefit the professions and patients.

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FIGURE 10

Disinfectants

Agent	Contact	Activity	Shelf life
Glutaraldehyde (2%)	10-30 mins 7-10 hours	intermediate ¹ high ²	7-30 days 7-30 days
Sodium hypochlorite 1% (1:5 H ₂ O)	10-30 mins	intermediate ¹	1 day
Iodophor 1% (1:20 70% alcohol)	10-30 mins	intermediate ¹	

1. Intermediate activity: effective against vegetable bacteria, fungi, viruses, not effective against spores. Probably effective against Hepatitis B, but not recommended at this time.

2. High activity: sterilization

Note: alcohol alone, phenol, quaternary ammonium compounds NOT accepted by Council of Dental Therapeutics (ADA)

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FIGURE 11
Equipment Disinfection/Sterilization¹

Item	Method						
	Chemoclave	Autoclave	Glutaraldehyde	Sodium hypochlorate	Iodophor	Cover	Dispose
Instrument tray, chair control, light handle, headrest, x-ray controls and surfaces							x
Countertops			x	x	x	x	x
Brush			x				
Burrs/diamonds	x	+	+				
Caviron tip/airwater syringe tip	x	+	+				
Hand instruments							
1) Carbon steel cutting edge	x		+				
2) Non carbon steel cutting edge	x	x	+				
Matrix bands	+	+	+				x
Handpiece							
1) Autoclavable	x	x					
2) Not autoclavable					x		
Glassware	x	+					
Plastics			x	x	x		
Saliva ejector tip							x
High volume suction tip							
1) Plastic			x				
2) Metal	x	x	+				
Surgical instruments, pliers	x	x					
Impression trays							
1) Metal	x	x					
2) Plastic			x				
Prostheses							
1) Non metal			x	x			
2) Metal				x			
Indelible pencil	x						
Rag wheels; sharpening stones	x						
Shade guides			x	x			
x method of choice, + second alternative							
Disposables when practical							

Scientific

HERPES SIMPLEX

IN THE DENTAL OFFICE

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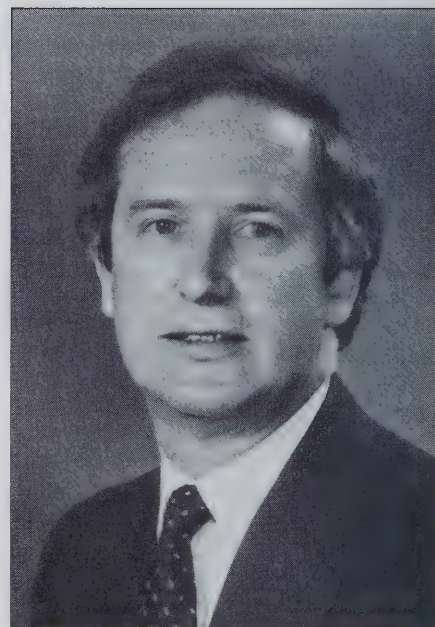
SOMMAIRE

Pour les professionnels dentaires, l'herpès est une maladie infectieuse dont il convient de se méfier. Dans ce bref compte rendu, il est fait mention des manifestations buccales ordinaires de cette maladie, de son mode de transmission probable et des moyens efficaces pour s'en garder.

Herpes simplex uniquely amongst oral diseases, is both a reason for which a patient may seek dental consultation, and a risk to the attending dentist. The risk may be both physical and economic.

The most common manifestation of primary oral infection with HSV is gingivostomatitis. Herpetic gingivostomatitis is largely an illness of children between six months and five years of age. However, occasional cases occur in adults. Physical examination reveals an unwell child with fever and fetid breath. Myriad ulcerations coat the mucosa of the oral cavity — buccal, gingival, lingual — the lips, and the surrounding areas of the face. There is cervical adenopathy. The illness lasts approximately two weeks before resolution.

The virus persists in latent form in sensory nerve ganglia. Reactivation of infection, brought on by factors such as menses, sun or cold exposure, fever, or psychologic stress, is manifest as herpes labialis, an



Dr. John Hardie

ABSTRACT

Herpes simplex is an infectious disease of significance to the dental profession. This brief report discusses the common oral manifestations of the disease, its most likely route of transmission to dental staff, and effective preventive techniques.

ulcerative lesion typically of the lower lip. In immunocompetent individuals, the lesion lasts three days until it dries and is not associated with appreciable morbidity. Recurrent herpes labialis is exceedingly common. It has been estimated that approximately 100 million episodes occur annually in the United States. From this one can give a gross figure of 10 million annually in

Canada, or one for every two people. Twenty-eight per cent of people with recurrences have them twice or more per year. The incidence of recurrent disease is sufficient that the practising dentist may expect to have regular exposure to the virus incidental to the management of patients, whatever the condition under treatment.

Immunocompromised individuals, for example transplant recipients, recipients of cytotoxic and immunosuppressive therapy, patients with advanced hematologic or other malignancies, frequently have more severe recurrences with stomatitis that may persist for two or more weeks. This may be confused with stomatitis due to cytotoxic chemotherapy.

The diagnosis is readily confirmed in the laboratory. Definitive diagnosis is by culture. Typically, positive results are obtained in the laboratory after two or three days of incubation of an appropriate sample. Electron microscopic examination of the sample may give results within hours, but is rarely indicated clinically.

Herpes simplex spreads readily by direct contact with an infected lesion. There is no documentation of spread by the respiratory route, for example by coughing or sneezing. The risk to the dentist or to the dental hygienist is of a cutaneous infection of the finger tip, herpetic whitlow.

Herpetic whitlow is manifested by redness and pain of the pulp space of the finger. Closer inspection reveals fine, fluid filled vesicles. There may be lymphangitic streaking up the finger, and tender axillary lymphadenitis. Fever and systemic illness are unusual. In the absence of pre-existent immunity, an initial infection lasts approximately two weeks. In the absence of medical intervention, it heals without scarring. Frequently, it is confused with a bacterial infection, and treated with surgical drainage and with antibiotics. Antibiotics are ineffective, and drainage promotes scarring. There is a risk of recurrence of herpetic whitlow. As with herpetic infections elsewhere, recurrent disease in the immunocompetent is more a nuisance than a disease of consequence for the individual. It lasts for three to five days and resolves spontaneously. Herpetic infection may spread to other sites by auto-inoculation. For example, rubbing the eye or rubbing the skin with an infected finger may produce local infection to those sites.

There is no published experience with antiviral therapy in herpetic whitlow. There is a burgeoning fund of knowledge about the use of acyclovir, an inhibitor of viral thymidine kinase, in the treatment and suppression of genital infection and, to a lesser extent, in oral infections. Acyclovir is formulated as a cream, as a pill, and as a solution for intravenous administration. The pill

is not yet available in Canada. All three modes of administration are effective in primary genital herpes. They reduce the duration and severity of infection, and promote clearance of the virus. They do not reduce the risk of subsequent recurrence, or the number of recurrences. None of the three formulations is of any proven benefit in the therapy of recurrent herpes in the immunocompetent individual. Oral prophylaxis, given for up to six months, is very effective in preventing frequently recurrent genital herpes, but only for the duration of prophylaxis. Recurrence occurs soon after cessation of prophylaxis. This prophylactic acyclovir was well tolerated in published trials, with trivial toxicity. There is some unease about prolonged use of the drug. Because it works at a nucleic acid level, there is concern, albeit undocumented, about carcinogenesis or mutagenesis. Safety during pregnancy has not been established.

The risk of spread from the fingers of an infected dentist or dental hygienist to patient is ill-defined, but presumably small. There has been one outbreak reported of herpetic stomatitis traced to a dental hygienist with herpetic whitlow.¹ It is not clear what containment measures are necessary for herpetic whitlow. Since the virus spreads by direct contact, wearing gloves for any patient contact is an essential step. A fresh pair of gloves should be worn for each patient. Other suggested measures are based on what is plausible and not on good information. During a primary episode of herpetic whitlow, the dental health worker should avoid patient contact until all lesions have dried, and no new ones have appeared for several days. The quantity of virus present in a primary infection is greater than in recurrences.

Patients with major immunodeficiencies such as those listed above, should not be seen at all during an episode of herpetic whitlow. They include people who by virtue of their disease, its treatment, or both are at risk of severe local herpetic infection or disseminated disease.

The use of gloves for dental health workers has previously been recommended in other contexts.² Gloves represent an effective barrier to prevent the spread of infection, particularly viral disease, between dental health worker and patient. The degree of protection is unproven. Acquired immunodeficiency syndrome related virus (HTLV-III, LAV) has not been transmitted to health care workers of any sort without documented contact with body fluids of infected patients. Hepatitis B, which spreads more readily than HTLV-III, similarly requires direct contact. The problem to the health care worker is not simply the patient documented to harbour one or other of these viruses. Appreciable numbers of

individuals are asymptomatic carriers, never identified as such. It becomes incumbent on the dental worker to exercise sufficient prudence to minimize the risk of acquisition of these viruses. In the case of hepatitis B, vaccination is possible and is effective. In all these viruses, wearing gloves and avoiding puncture wounds is protective.

Careful handling of sharp instruments will obviously reduce the risk of puncture wounds. There is no clear documentation of spread of herpetic infection amongst patients because of contaminated instruments. The virus is susceptible to heat and to a broad range of disinfectants.

Instruments should be washed to remove visible contamination, ultrasonically cleaned, and sterilized by heat (autoclave, dry heat, chemical – vapour). Instruments not able to withstand heat should be immersed in a fresh solution of glutaraldehyde for 6-10 hours at a dilution recommended by the manufacturers.

Herpes simplex represents a potential nuisance of major proportions to the individual dental practitioner. Risk of acquisition by the dental staff is greatly reduced by wearing gloves.

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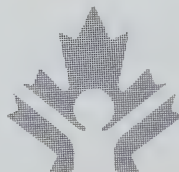
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ORAL HYGIENE

SKILLS ASSESSMENT

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ABSTRACT

The oral hygiene skills found in Grade 6 children participating in provincial dental public health programs were compared with those of similar children who had received their oral hygiene instruction from their family dentist. Children in the provincial program showed superior brushing skills. Neither group was adept in using dental floss. Considerable improvement in preventive lifetime personal dental hygiene skills can still be obtained, and more cautious and thorough instruction of these skills is required. Private dentistry and public health dentistry both need to support and reinforce each other in this activity.

SOMMAIRE

On a comparé l'hygiène bucco-dentaire de deux groupes d'élèves de sixième année. Ceux du premier groupe avaient participé à un programme public provincial, tandis que ceux du second avaient été initiés à l'hygiène dentaire par leurs dentistes. Les premiers se brossaient mieux les dents que les seconds, mais ni les uns ni les autres ne savaient utiliser convenablement la soie dentaire. On peut donc faire encore beaucoup pour améliorer l'hygiène personnelle des enfants et les initier à des soins préventifs. Cependant, il convient de faire preuve de prudence et de persévérance dans ce domaine. Les dentistes privés tout comme les dentistes en hygiène publique doivent concerter leurs efforts en ce sens.

Dental health education has been recognized as a cornerstone of dental public health activities for many years. In British Columbia, we have considered behavior to be much more important than any knowledge gained as a result of this education.¹ Classroom instruction, with participation in the use of the toothbrush and dental floss, has formed part of this educational activity in every school in our province where dental public health staff were available.² The dental health of children in British Columbia has shown continuous and dramatic improvement.^{3,4} As our programs promote attendance to the family dentist, most of these children have also received toothbrushing and flossing instruction at their dentist's office. Government restraint programs caused us to take a second look at this educational activity, to see if it could be left solely to the private dental office. To test this possibility, an oral hygiene skills assessment was performed on Grade 6 children in schools where dental public health programs had been carried out for years, and in schools where they had not.

PROJECT DESIGN

Two schools in New Westminster were selected as the test locations because they had been involved in the provincial dental health program for the last five years. Two schools in Port Moody of similar socioeconomic status were used as controls because

they had not received any dental health program for the last four years.

A brief letter was sent home with all Grade 6 children to notify parents of the dental health skills evaluation to be carried out. Principals and teachers were instructed to keep the actual date of the assessments secret, so that the students could not prepare themselves for any special day. Work stations were established to provide privacy for a hygienist and student. The same three hygienists assessed students in both the program and non-program schools. Materials provided consisted of a toothbrush and paste, strand of floss, rinsing cups, stand-up mirror, disclosing solution, napkin, mouth mirrors and a small flashlight. An egg-timer was used to give each student three minutes to demonstrate their brushing and flossing routine, as if they were at home in front of the bathroom mirror.

A pre-tested evaluation sheet was used by the hygienist to translate each student's oral hygiene skills into numerical values. This evaluation was based on the important factors in oral hygiene proficiency found in our own policy manual and a recognized standard textbook on preventive dentistry.^{5,6}

To score brushing ability, points were awarded as follows: one point was given for brushing each of the buccal, lingual and occlusal surfaces of each sextant of the dental arches; one point was given for brushing the tongue; one point was given for brushing the palate; zero to three points were given for adeptness dependent on the

TABLE I
Brushing Skill Scores

NEW WESTMINSTER TEST GROUP				PORT MOODY CONTROL GROUP			
MAXIMUM				MAXIMUM			
		POSSIBLE	RESULT	PERCENT	POSSIBLE	RESULT	PERCENT
Buccal	ULP	79	73	92.41	73	65	89.04
	UANT	79	78	98.73	73	73	100.00
	URP	79	75	94.94	73	70	95.84
	LLP	79	75	94.94	73	70	95.89
	LANT	79	74	93.67	73	63	86.30
	LRP	79	71	89.87	73	62	84.93
	TOTAL	474	446	94.09	438	403	92.01
Lingual	ULP	79	50	63.29	73	26	35.62
	UANT	79	54	68.35	73	34	46.58
	URP	79	50	63.29	73	24	32.88
	LLP	79	50	63.29	73	18	24.66
	LANT	79	51	64.56	73	35	47.95
	LRP	79	47	59.49	73	26	35.62
	TOTAL	474	302	63.71	438	163	37.21
Occlusal	UL	79	65	82.28	73	50	68.49
	UR	79	58	73.42	73	57	78.08
	LL	79	69	87.34	73	60	82.19
	LR	79	68	86.08	73	62	84.93
	TOTAL	316	260	82.28	292	229	78.42
Palate		79	0	0.00	73	0	0.00
Tongue		79	1	1.27	73	0	0.00
Adeptness		237	163	68.78	219	144	65.75
Bleeding gums		0	-39	16.46	0	-51	23.29
Plaque index		0	-81.7	av 1.03	0	-74.3	av 1.01
BRUSHING TOTAL		1659	1051.3	63.37	1533	813.7	53.08
Average		21	13.31	63.38	21	11.13	53.00

TABLE II
Flossing Skills

NEW WESTMINSTER TEST GROUP				PORT MOODY CONTROL GROUP			
MAXIMUM ACHIEVED				MAXIMUM ACHIEVED			
SKILL	POSSIBLE	RESULT	PERCENT	POSSIBLE	RESULT	PERCENT	
Adept	79	56	70.89	73	30	41.10	
Eased floss	79	23	29.11	73	12	16.44	
Under gingivae	79	47	59.49	73	31	42.47	
"C" shape	79	23	29.11	73	19	26.03	
Progression	79	44	55.70	73	36	49.32	
No bleeding	79	30	37.97	73	31	42.47	
Used new section	79	19	24.05	73	16	21.92	
Totals	553	242	43.76	511	175	34.25	
Average	7	3.06	43.76	7	2.39	34.25	

TABLE III
New Westminster Program Group

BRUSHING				FLOSSING							
Brushing Score		No.	Per-Cent	Excellent		Good		Fair		Poor	
				#	%	#	%	#	%	#	%
Excellent	80%+	12	15.19	1	1.26	4	5.06	4	5.06	3	3.80
Good	65-79%	29	36.71	6	7.59	2	2.53	5	6.33	16	20.25
Fair	50-64%	21	26.58	3	3.80	1	1.26	4	5.06	13	16.45
Poor	<50%	17	21.52	1	1.26	1	1.26	2	2.53	13	16.45
TOTALS		79	100.00	11	13.92	8	10.13	15	18.99	45	56.97

student using fine movements, a recognizable technique and a system of progression through the mouth; three points were deducted if bleeding resulted from brushing; the plaque index was also deducted from the score. A maximum of 21 points could be earned for brushing.

To score flossing ability, one point was awarded for each of the following skills: the student could hold the floss effectively; the floss was eased through the contact point; the floss was placed under the gingivae; the floss was wrapped in a "C" shape about the adjacent teeth; a systematic progression through the mouth was used; no gingival bleeding resulted from the flossing; and a new section of floss was used for each interproximal space. A maximum of seven points could be earned for flossing.

Tables I and II show how the program students and the control students scored as groups, for brushing and flossing. To demonstrate how the students in both groups scored individually, they are ranked by scores (Tables III and IV). Excellent brushers were considered to be those having a brushing score equal to or better than 16.8 (80 per cent). Good brushers were those scoring 13.6 to 16.7 (65-79 per cent). Fair brushers scored 10.5 to 13.5 (50-64 per cent) and poor brushers scored less than 10.5 (50 per cent). Excellent flossers were considered to be those who scored 6 or 7 points, good — those scoring 5, fair — those scoring 4 and poor — those scoring 3 points or lower.

DISCUSSION

Brushing

The average plaque score for both groups was quite low. These children did not appear to be heavy "plaque-formers". Deducting the plaque index did not cause any appreciable difference in oral hygiene scores between the two groups. It was expected that both groups would score close to 100 per cent in brushing the buccal surfaces and this proved to be the case. Both groups showed that the lingual and occlusal surfaces are those missed most often. The program group brushed almost twice as many lingual surfaces as the control group and also brushed more upper occlusal surfaces. Neither group routinely brushed the palate or the tongue. It was surprising that a significant proportion of both groups showed bleeding upon brushing.

Flossing

Both groups showed a disappointing level of effectiveness in the use of dental floss although the program group did show more ability in holding the floss. It was of great concern to see that the majority of children

caused the gingivae to bleed when using the floss.

On an individual basis, the rate of excellent and good brushers in the program group appears to be double that of the control group. Good flossing skills are evident in only 24 per cent of the program group and 19.18 per cent of the control group.

CONCLUSIONS

The overall results were disappointing, as the skill level in both groups was below our expectations. We were surprised that good brushers are not necessarily good flossers and vice versa. We have used the results of this paper to redouble our efforts in the schools so that children will leave elementary school with a satisfactory standard of oral hygiene performance. Private dental offices need to focus on the standard of oral hygiene skills their pedodontic patients have developed as well, so that the efforts of private practice and dental public health are mutually supporting and reinforcing. Much more care in teaching the "gentle" use of floss should be used by all oral health instructors, so that possible injury to the gingival tissue is avoided. Awareness that bleeding on brushing is a danger signal also needs to be emphasized.

Since this test, individual hygienists on our staff have reported that they have used this information to develop a high standard of classroom oral hygiene skills with suc-

TABLE IV

Port Moody Control Group

BRUSHING					FLOSSING					
Brushing Score	No.	Per-Cent	Excellent #	%	Good #	%	Fair #	%	Poor #	%
Excellent 80%+	6	8.22	1	1.37	2	2.74	3	4.11	0	0.00
Good 65-79%	12	16.44	2	2.74	3	4.11	0	0.00	7	9.59
Fair 50-64%	19	26.03	0	0.00	2	2.74	3	4.11	14	19.18
Poor <50%	36	49.31	2	2.74	2	2.74	5	6.85	27	36.99
TOTALS	73	100.00	5	6.85	9	12.33	11	15.07	48	65.75

cess. It is our objective to develop this high standard of oral hygiene skills in children throughout the province. It is our belief that in this way, they will be able to prevent and control the amount of periodontal disease they will face as adults.

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D.M. Gunther and L.J. Tomczak are dental hygienists with the Ministry of Health.

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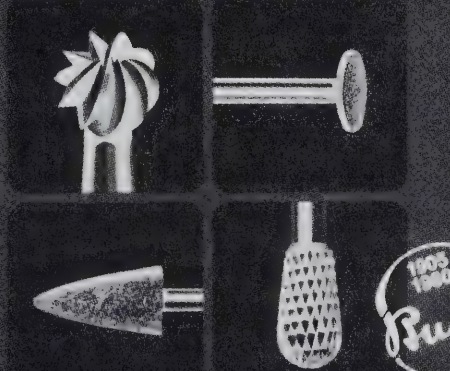
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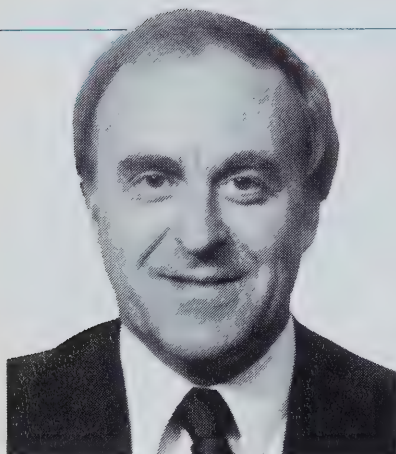
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ABSTRACT

This paper provides a brief synopsis of the outreach dental programs offered at the University of Toronto. These programs were created to provide the undergraduate students with direct and personal clinical exposure in the areas of: (1) a city-core clinic, initially for underprivileged people; (2) the physically and mentally disabled; and (3) the native people of the North. It is hoped that such programs will train general dentists to meet the challenge of providing care to all segments of society.

SOMMAIRE

Voici un résumé des programmes de formation externes offerts en médecine dentaire à l'Université de Toronto. Ces programmes ont pour but d'initier les étudiants sous-diplômés à l'exercice de la médecine dentaire 1) dans une clinique urbaine pour les personnes défavorisées, 2) dans une clinique pour les handicapés physiques et mentaux, 3) dans une clinique pour les autochtones du Nord. On espère former ainsi des praticiens généraux capables de traiter des personnes de toutes les classes sociales.

The inadequate supply of patients in some areas, the emphasis on prevention and the seemingly over supply of dental practitioners will continue to dictate a change in the dental curriculum for undergraduate dental students. Add to these factors the increased demand for dental care from minority groups, the mentally and physically disabled, the medically compromised and the aging patient, and one realizes that the delivery of dental treatment to these groups of people in the traditional dental faculty is totally unrealistic. This being the case, the majority of current dental students graduate with a great deal of didactic and clinical knowledge but are in many instances inadequate in their ability to interact with the people they will be called upon to treat. Few, if any, dental schools can offer all their students an opportunity to treat persons from the aforementioned groups. However, if as a profession, dentistry is going to meet the challenge of total dental care for all segments of society, the curriculum must be flexible enough and designed in such a way as to allow students to participate in community and/or institutional treatment centres as part of their credit system.

Such a system may be operable in any one of several ways, depending on the class size and availability and the number of satellite clinics, support of the local dental practitioners and the various community, provincial or state agencies. Exposure to the various groups may occur through a mandatory rotation for all students, an elective program for all students or a selective program for some students. Ideally, the mandatory rotation is of the greatest benefit but a large class size makes this difficult to manage and necessitates a sufficient number of clinics for students to attend.

During the last 15 years, the Faculty of Dentistry at the University of Toronto has developed a variety of Outreach Projects which serve as educational service models in which learning and services have been integrated.

The first of these Outreach Projects was a dental facility in the Students' Health Organization of the University of Toronto Community Clinic (S.H.O.U.T.) (Figs. 1 and 2), in a central core, economically deprived area of the city. Although this clinic was primarily self-supporting, it did receive some government funding and the staff dentist was a faculty employee. The



Fig. 1. Student's Health Organization of the University of Toronto Community Clinic (S.H.O.U.T.) — a large remodelled home.

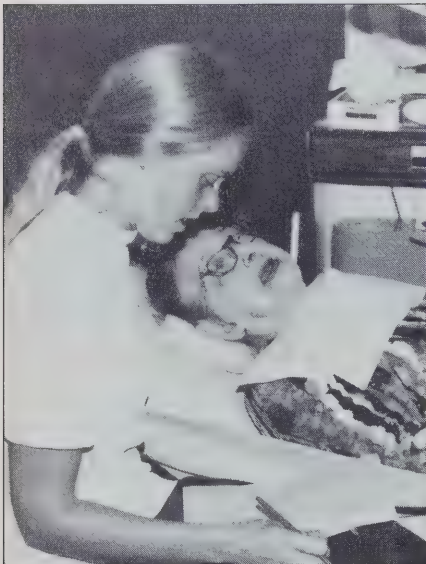


Fig. 2. Senior student taking patient history at S.H.O.U.T.

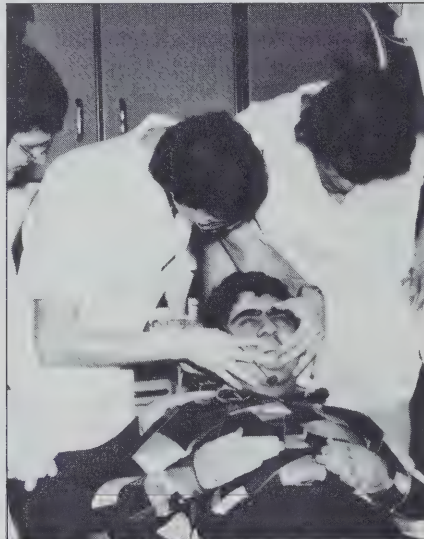


Fig. 3. Senior students examining a mentally retarded young adult. Department of Dentistry, Mount Sinai Hospital, Toronto.



Fig. 4. Faculty of Dentistry, University of Toronto, Mobile Dental Clinic for the Disabled. A converted 60' mobile trailer home which has a self-contained apartment and dental office.

senior dental students were assigned to the clinic for one week during their final year. During this time they were exposed to and responsible for treating a number of patients, ranging from young children to the elderly. The initial years of this program were exciting, as the students felt that the new environment offered both educational and treatment challenges within a population that was reluctant to attend the dental clinic or private practice. A major thrust of this program centred on education in the prevention of dental disease. This enabled the students to participate in an ongoing dialogue with the patients but, even more important, to interact with other members of the student health science disciplines concerned with total health care. In this way, the educational base for all student participants was broadened, and each group, whether in medicine, pharmacy, psychology or dentistry, all gained a better appreciation for each other's role in total health care. This type of student interaction fostered many ideals for a true group practice after graduation and also stressed the need for establishing all types of practices in the centre core of a large urban area, rather than in the suburbs or peripheral areas as had been the trend. Unfortunately, several factors occurred which led to the demise of this program. These were:

1. An inflexible grading system which did not allow students to receive credits for the treatment services rendered. Gradually the "exciting mandatory assignment" became an unwanted experience.

2. There was a population shift and it was found that more people were now coming to the Faculty of Dentistry Clinic for treatment, and the S.H.O.U.T. Clinic was servicing people from out of the area, who found it inexpensive as compared with the private practitioner in their home area.

3. Budgetary and manpower restraints with the faculty necessitated the withdrawal of faculty supervision. There is no doubt that in the early years, the students were the benefactors from this different socioeconomic dental exposure, and if it were to be reinstated in another area we would have to be assured that:

- a. all treatment care would be credited;
- b. a screening mechanism would be instituted for the patients;
- c. there would be a solid financial base for operating the clinic which supported in total a faculty involvement.

Developing concomitantly with the foregoing program were two other outreach programs, namely, Dental Care for the Disabled, and Dental Care for Native Peoples in Canada's North. Both these programs continue to flourish and will be discussed subsequently.

During the 1960s and '70s, the development of programs for the disabled began to increase in number and receive much publicity at local, national and international levels.¹ Few dental schools were involved in teaching any aspect of dentistry for disabled persons to their undergraduate students. With the United Nations proclamation of 1981 as the Year of the Disabled² and the Wood Johnston Financial Support^{3,4} to several American dental schools for program development, there was a realization that if disabled people needed dental care and, in fact, were rightfully demanding it, dental schools, universally, had to incorporate some aspects of dentistry for the disabled into their respective curriculums. This course had to have a didactic component, but it also, to sensitize students, had to have a "hands on" clinical exposure. The program at the University of Toronto, Faculty of Dentistry, has as its clinical base the Mount Sinai Hospital Dental Department (Fig. 3) and a Mobile Clinic (Fig. 4) in more rural areas of Northern Ontario. The hospital rotation is mandatory and commences in the latter part of the junior academic year as part of the pedodontic program.

The rotation is preceded by video tapes and lectures dealing with various conditions which cause mental and physical disabilities and associated dental problems. One lecture is given by a disabled person, in a wheelchair, and deals with feelings and attitudes of the disabled towards dental care and dental practitioners. The lecture is accompanied by a non-verbal person who demonstrates the use of Bliss Symbolics as a means of communication. For most dental students, the reality of such an experience is stimulating and reinforces an awareness of the magnitude of dental problems that exist for the disabled, and what dental practitioners, as deliverers of a health service must do to alleviate them. The clinical exposure not only provides the undergraduate student with an opportunity to treat the disabled, but allows him to acquire some insight into some of the psycho-social, cultural and financial difficulties the majority of these people and their families have to endure. This is an educational benefit that is not measured at lecture time.

The Mobile Dental Clinic for the Disabled⁵⁻⁷ is a "selective", elective program. The clinic is staffed by one of three Faculty of Dentistry interns for a four-month period (in two-month sessions). There is a full-time, trained dental assistant and from time to time, dental hygienists and assistants in training in community colleges are sent to the mobile as part of their educational program. Each year, 8 to 10 senior dental students are selected and assigned to the mobile



Fig. 5. The Mobile Dental Clinic for the Disabled.

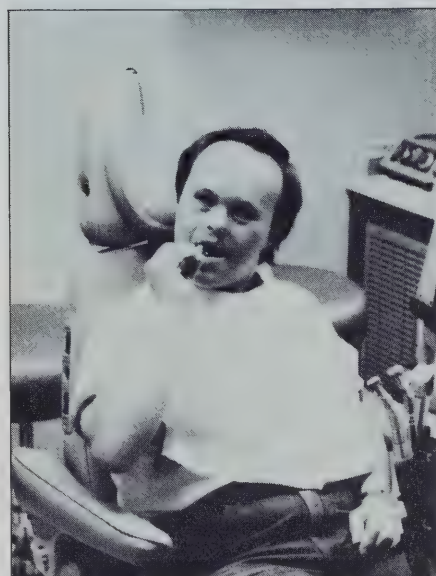


Fig. 6. Learning and practising oral hygiene measures.

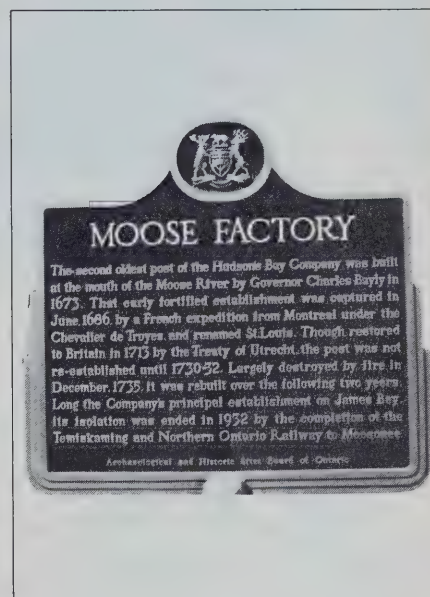


Fig. 7. Moose Factory.



Fig. 8. Moose Factory General Hospital. One of the dental operatories.



Fig. 9. Native child receiving dental treatment at Moose Factory General Hospital.

for a two-week period. During this time, they actively treat (under supervision) all persons, i.e., children and adults, with disabling conditions. (Figs. 5 and 6).

The mobile is a converted mobile home, specially designed and equipped, which is stationed in a geographic area where need has been demonstrated, and it remains there until the demand for service is eliminated. Once the trailer is moved, patients who are now accustomed to dental treatment can be referred to dental practitioners in the area. There is no charge for treatment since the project is now totally funded by the Province of Ontario, Ministry of Health, after an initial funding from the Atkinson Charitable Foundation.

As an adjunctive service and to ensure a broader base for dental care, a portable dental unit has been purchased through a grant from the Alpha Omega International Dental Foundation, which will enable treatment to be rendered to those confined to home or institution.

The hospital program is in its tenth year of operation and the mobile is completing its seventh year. In both of these programs, our undergraduate students have gained invaluable experience in the treatment of the disabled and a better appreciation of their day-to-day living problems.

Because the properly trained and motivated general practitioner must be held

responsible for the major role in delivery of dental service to the disabled population, training the undergraduate students to feel comfortable and competent in this area is a responsibility that dental faculties cannot dismiss.⁸⁻¹⁰ In spite of the imposed financial constraints to most dental schools, there must be ongoing funding for the continued development of educational programs that allow for the training of "complete" dental practitioners — who have been scientifically and clinically educated to treat all segments of society, including the disabled, the elderly and the medically compromised.

The third elective is referred to as the Northern Project and is concerned with the delivery of dental care to native peoples in the Province of Ontario's Northland. This program is totally funded by the Federal Department of National Health and Welfare — Medical Services Branch. The site base is Moose Factory Zone General Hospital (Fig. 7), which has a maximum capacity of 85 beds and is situated at the southern tip of James Bay, some 700 air miles north of Toronto. The modern, three-operator clinic (Fig. 8) is staffed by two full-time dental general practitioners employed by the faculty, as well as the required number of dental auxiliary staff. Each year, 20 senior students are selected to participate in the two-week program, which is completing its tenth year. In addition to the undergradu-

ate students, six dental interns from Mount Sinai Hospital and three from the Faculty of Dentistry rotate through the program for one month each, as well as the postgraduate pedodontic students, who spend from two to four weeks at the hospital between the first and second year of their program. A complete range of dental treatments, with the exception of major orthodontics, is provided to both Indian and Inuit patients of all ages from the main clinic at Moose Factory and the satellite coastal communities (Figs. 9 and 10). Approximately 280 undergraduate students, dental interns and postgraduate pedodontic students have benefited from the experience, and many northern communities have acquired dental practitioners as a result of this project.¹¹⁻¹⁵

At this time, approximately 40 per cent of the senior class at the Faculty of Dentistry, University of Toronto, are able to participate in the aforementioned elective programs. Their dental education has been enriched by their experiences and the people they have treated, and the communities in which they settle will be the ultimate benefactors. We hope that in the not too distant future, additional programs will be added for dental care for the elderly. These programs will make use of existing facilities in close proximity to the dental school and could be either an elective, a mandatory assignment or a combination of both. The students will have had a series of lectures on aging and will be expected to render some dental treatment for the older adult as well as to gain a better understanding of the aging process.

Changes in curriculum, just for the sake of change, are usually disruptive, but changes in response to perceived and demonstrated needs can be innovative, stimulating and challenging. At the Faculty of Dentistry, University of Toronto, we hope we are meeting the challenge.

We gratefully acknowledge the Atkinson Charitable Foundation in Toronto, Ontario, for the initial financial support for the Faculty of Dentistry, University of Toronto Mobile Dental Clinic for the Disabled; Medical Services Branch, Health and Welfare Canada, for financial support of the Moose Factory Program and Dr. D.M. Linklater, Regional Dental Officer; Mount Sinai Hospital, Toronto, Ontario, for its support in developing programs for the disabled in the Department of Dentistry; Dr. Gordon Nikiforuk, former Dean, Faculty of Dentistry, for his initial and ongoing support of the concept of Outreach Programs; the Province of Ontario, Ministry of Health, for its continued support of the Mobile Dental Clinic; and Dr. A.R. Ten Cate, Dean, Faculty of Dentistry, for his continued support of the Faculty Outreach Program.



Fig. 10. Moose Factory. School for native children. Class project concerned with teeth, diet and hygiene.

Dr. Levine is professor and head, Department of Paedodontics, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6. (formerly Assistant Dean, Academic, Chairman Curriculum Committee 1979-1985)

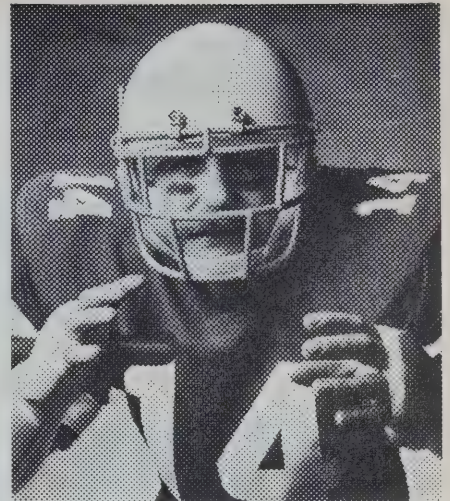
Dr. Sigal is assistant professor, Department of Paedodontics, Faculty of Dentistry, University of Toronto.

Dr. Munroe is professor and head, Department of Oral Medicine and Pathology, Faculty of Dentistry; associate dean, academic, University of Toronto; chairman of Curriculum Committee and dental surgeon in chief, Mount Sinai Hospital, Toronto.

Reprint requests to Dr. Levine.

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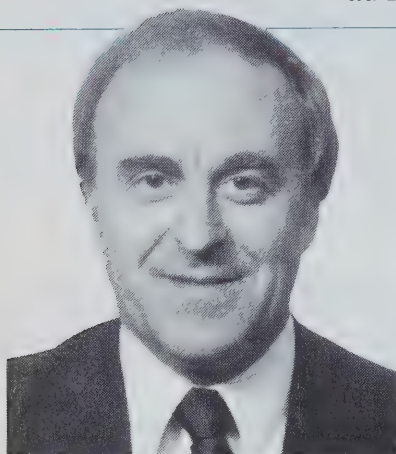
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Announcements

AUGUST/AOÛT 1986

August 15: Expo '86 Dental Seminar, "The Planning is Strategic" by Dr. Burton Press. Sponsored by the College of Dental Surgeons of British Columbia. Contact: College of Dental Surgeons of British Columbia, 1125 West 8th Ave., Vancouver, B.C. V6H 3N4.

August 17-19: Canadian Academy of Restorative Dentistry annual meeting, Sheraton Hotel, Halifax, Nova Scotia. Top scientific and social program. Contact: Dr. John Merritt, Registration Secretary, 1969 Connaught Ave., Halifax, N.S. B3H 4E2.

August 17-19: The Canadian Academy of Restorative Dentistry 23rd scientific session, The Sheraton Hotel, Halifax, N.S. Contact: Dr. V.B. Shaffner, Scientific Chairman, 5991 Spring Garden Rd. Suite 580, Halifax, N.S. B3H 1Y6, 902-429-2333.

August 18-21: Canadian Academy of Pediatric Dentistry presents the 7th Canadian Congress on Dentistry for Children, University of British Columbia, Vancouver, B.C. Contact: Dr. R.E. Patton, Suite 801, 925 W. Georgia St., Vancouver, B.C. V6C 1R5 (604) 685-5620.

August 19-20: Canadian Academy of Pediatric Dentistry annual meeting, University of British Columbia, Gage Towers, Vancouver, British Columbia. Contact and register with: Dr. W.S. Cheung, Suite 103, 3020 Lincoln Avenue, Coquitlam, B.C. V3B 6B4. (604) 484-3213.

August 22, 23, and 24: Dr. Waldemar Brehn, Advanced Mechanics. Sponsored by the International Dental Institute (I.D.I.) Inc. Course location Montreal, call Diane Baillargeon at (514) 463-1281 for details.

August 23: Academy of Dentistry International, Convocation and Annual Meeting. Sheraton Centre, Halifax, N.S. Contact: Dr. Donald Williams, 160 Highfield St., Moncton, N.B. E1C 5M6.

August 24-27, 1986: Canadian Dental Association Annual Convention. Halifax Nova Scotia. Contact: CDA, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

August 25-29, 1986: Biennial Conference of the New Zealand Dental Association, Wellington, New Zealand. Contact: Conference Secretary, New Zealand Dental Association, P.O. Box 3709, Wellington, New Zealand.

SEPTEMBER/SEPTEMBRE

September 14-16: Clinical Geriatric Dentistry Symposium, co-sponsored by the American Dental Association, the Veterans Administration and the American Society for Geriatric Dentistry. Chicago, ADA Headquarters. Contact: Dr. J.M. Doherty, Dental Service, (160) VA West Side Medical Centre, P.O. Box 8195 Chicago, Ill. 60680, USA.

September 15-19: Annual Conference of the Canadian Society of Forensic Science, Sheraton Brock Hotel, Niagara Falls, Ontario. Contact: Executive Secretary, Canadian Society of Forensic Science, 2660 Southvale Crescent, Suite 215, Ottawa, Ontario, K1B 4W5, 613-731-2096.

September 15-December 11: UCLA Extension Dental Refresher Program, UCLA Extension Downtown Centre, Los Angeles, California. Program designed to improve knowledge of non-US trained dentists. Contact: Continuing Education in Health Sciences, UCLA Extension, 10995 Le Conte Avenue, Room 614, Los Angeles, 90024, 213-825-9187.

September 18-20: The Ninth Annual Greater Niagara Frontier Dental Meeting, Buffalo Convention Centre, Buffalo, New York. Contact: Pauline Bress, Director, Continuing Dental Education, 167 Farber Hall, Buffalo, N.Y. 14214, 716-831-2320.

September 20-21: Canadian Craniofacial Society symposium and annual general meeting, Toronto Hospital for Sick Children, Toronto, Ontario. Contact: Dr. Gordon Wilkes, 1004-10045 - 111 St. Edmonton, Alta, T5K 2M5.

September 20-25: Canadian Paediatric Society 63rd annual meeting, Hilton Harbour Castle, Toronto, Ontario. Contact: Canadian Paediatric Society Secretariat,

Children's Hospital of Eastern Ontario, 401 Smyth Rd. Ottawa, Ont. K1H 8L1, 613-737-2728.

September 21: Canadian Hypertension Society is sponsoring a forum on "Community Approaches to High Blood Pressure Prevention and Control", 1-5 pm, Toronto, Ontario. Contact: Community Approaches to High Blood Pressure Prevention and Control, c/o Dr. Karen Mann, Hypertension Unit, Camp Hill Hospital, 1763 Robie Street, Halifax, N.S. B3H 3G2.

September 24-27: Annual Meeting of the American Academy of Periodontology, Cleveland Convention Centre, Cleveland, Ohio. Featured speaker is Dr. Per-Ingvar Branemark. Contact: Jean Pierson, The American Academy of Periodontology, Room 924, 211 E. Chicago Ave., Chicago, Ill. 60611-2690, 312-787-5518.

September 24-29: Canadian Academy of Endodontics Annual Meeting, Four Seasons Hotel, Vancouver, B.C. Contact: Dr. S.K. Sinanan, 925 West Georgia St. Suite 1015, Vancouver, B.C. V6C 1R5.

September 26-28: 3rd Samuel Seltzer Endodontic Symposium "Endodontic Flare-ups" Hershey Hotel, Broad and Locust Streets, Philadelphia, Pennsylvania. Contact: Dept. of Endodontology, Temple University School of Dentistry, 3223 North Broad St., Philadelphia, PA, 19140, 215-221-2810.

OCTOBER/OCTOBRE

October 18-23: American Dental Association, 127th Annual Session, Miami Beach Convention Centre and Fontainebleau Hilton Hotel. Contact: American Dental Association, 211 E. Chicago Ave., Chicago, Ill. 60611, 312-440-2726.

October 31-November 1: Professional Development Committee of the Ontario Dental Association and the Ontario Society of Endodontists present the Symposium on Clinical Endodontics. Featured speakers include Drs. H. Trowbridge, D. Aren, R. Burns, S. Cohen, J. Namias, W. Cunningham, J. Schoeffel, A. Machanowicz, M. Fagin and R. Greenfield. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ont. M5R 2P1 416-922-3900.

NOVEMBER/NOVEMBRE

November 16-19: The Saul Kamen Seminar on the Dental Management of the Mentally Retarded and the Developmentally Disabled Patient. Teaching Center Auditorium, Long Island Jewish Medical Centre, New Hyde Park, New York. Sponsored by the Dept. of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center, State University of New York at Stony Brook. \$450 for dentists, \$250 for auxiliaries. Contact: Ann Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York, 11042, 718-470-8650.

November 17-21: Second International Congress on Gerodontology, Stamford-Westin Plaza Hotel, Raffles City, Singapore. Hosted by the Singapore Dental Association. Contact: Organizing Secretary, 2nd International Congress of Gerodontology, Singapore Dental Association, Medical Alumni, 4A College Rd. Singapore 0316, Republic of Singapore.

November 25-28: 6th Annual Sports Medicine Seminar "Sports Medicine for All Practitioners", Intercontinental Hotel, Maui, Hawaii. Contact: Dr. Stuart Zeman, Course Chairman, 2999 Regent St., Suite 203, Berkeley, California, 94705, 415-540-8686.

November 27-29: International Implant Seminar, Hong Kong. Co-sponsored by the Canadian Society of Oral Implantology and other international implant groups. Contact: Barbara Cleland, Exec. Secretary, Canadian Society of Oral Implantology, Box 84, Site 7, RR 1, Calgary, Alta. T2P 2G4. 403-284-9767.

1987+

January 29-31, 1987: Miami Winter Meeting. Hyatt Regency Miami. Contact: Dotti DuBreuil, Coordinator, Miami Winter Meeting, 420 South Dixie Highway, Coral Gables, Florida, 33146, 305-667-3647.

July 1, 1987: Applications are being accepted for the Postdoctoral Program Dental Diagnostic Science at the University of Texas Health Science Center, at San Antonio, for the class beginning July 1, 1987. Contact: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Dr., San Antonio, Texas, 78284.

BOARD OF GOVERNORS NOTICE OF MEETING

The Annual Meeting of the Board of Governors of the Canadian Dental Association will be held on August 22-23, 1986 (Friday and Saturday respectively) at the Sheraton Halifax, Halifax, Nova Scotia, commencing at 9:00 a.m. on August 22.

It is brought to your attention that meetings of the Board of Governors are open to all members of the Association.

The Board is composed of twenty-five governors and a Chairman. Governors represent members across Canada on a 1 to 500 ratio. The Canadian Forces Dental Services and Student members are represented by one member each.

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NORTHERN MANITOBA—Extremely busy Dental Practice for sale. With equally busy satellite practice in adjoining town. No local competition. Almost 100% of patients have insurance. Owner wishes to return to graduate school. Apply Box No. 2328.

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ALBERTA—Edmonton. Dentists. Group practice associateship, high yearly earnings; secure future growth; exciting modern environment; cash practice; full patient load immediately. Phone Debbie Ryning 1-403-487-9940.

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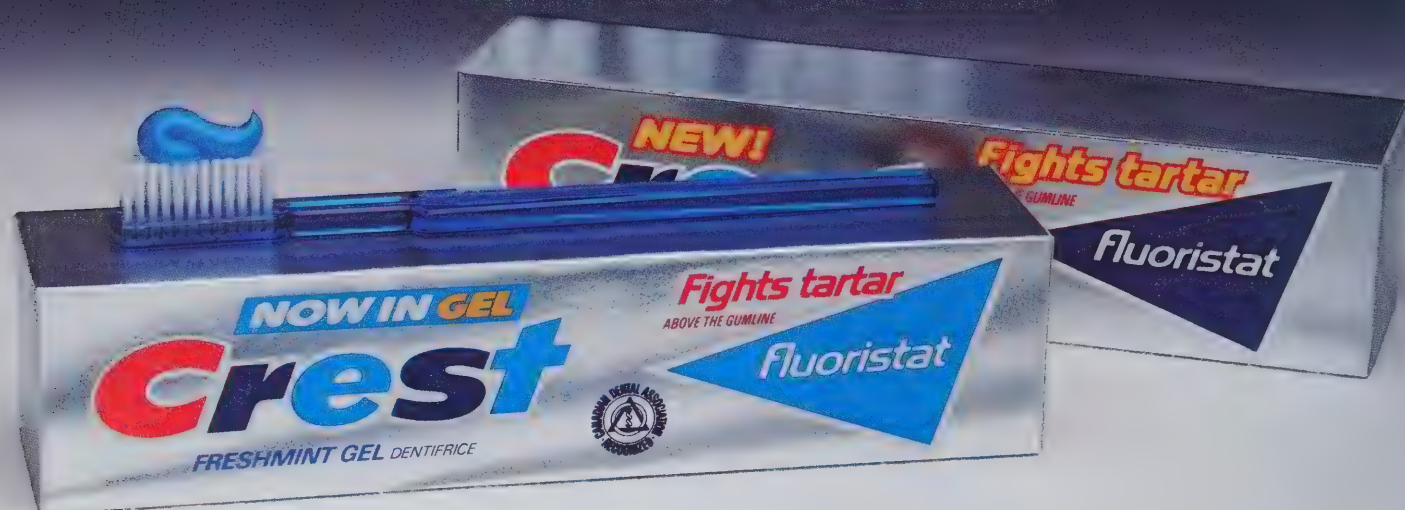
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“SHOP” TALK Uses and Abuses

The numerous public discussions about alcohol, drug, and child abuse should accelerate resolution of these frustrating dilemmas. Indeed, our profession has to be congratulated for recognizing that colleagues with such problems may benefit from intra-professional counselling. Although it is less serious, little attention has been given to the misuse of dental jargon which is practiced, albeit unintentionally, by many dentists.

It is to be expected that a unique language, to communicate precise information, will be developed by specialty groups. Examples of dental talk are; composites, ANUG and MODBL. These and similar expressions which have specific meanings are readily recognized by dentists, and they do simplify communications within the profession. Their sophistication prevents routine use in discussions with related professions and patients.

Dentists seem to be unaware that the abbreviations “Ortho”, “Perio”, and “Endo” may have slightly different connotations depending upon the context in which they are used. It confuses communication if such abbreviations are used with patients or in formal reports to physicians and lawyers. Although the latter group may appreciate such deliberate obfuscation. “Well Mrs. Smith, if my endo works I’ll send you to a perio man before considering adult ortho” – is bound to confuse Mrs. Smith who is bewildered by an excess of technical jargon.

It appears that professionals have an inherent desire to create new words from standard abbreviations. A few days ago a colleague remarked that he had “successfully endodized a third molar”. Presto! a new word from the root “endo”.

A “prophy” is meaningless to most people apart from dental personnel. The word prophylaxis must be used with caution. “Mr. Jones must have a prophylaxis before he visits again” requires some qualification, unless the dentist wishes to be charged with maintaining an office of ill-repute.

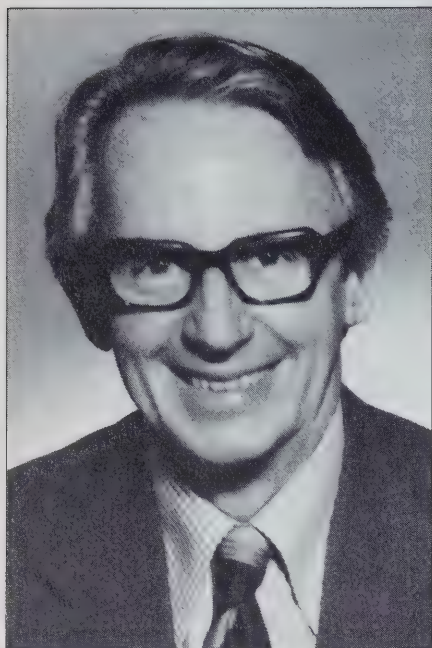
The acronym TMJ is derived from the compound term Temporomandibular joint. Its use is to simplify the naming of a specific component of the skeletal-muscular system. Nevertheless the term is misused. “I do TMJ”, “I have a patient with TMJ”, “How to solve TMJ” – are commonly used expressions which confuse the already complex and controversial topic of TMJ Dysfunction.

No doubt colleagues have examples of similar words and phrases which the Journal would publish to remind us that not everyone understands our language.

Communication among dentists is essential, but we must limit “shop” talk to appropriate occasions. Once aware of this problem it should not be too difficult to avoid misuse or abuse of this effective aspect of our profession.

*J. Hardie, BDS, MSc, FRCD(C)
Chairman, Editorial Board*

News Update



Dr. Newbury

FDI PRESIDENT DIES SUDDENLY

Charles Renton Newbury, CBE, MDSc, FRACDS, FACD, FICD, President of the Fédération Dentaire Internationale, suffered a fatal heart attack and passed away July 6, 1986.

Born in Melbourne, Australia in 1915, Dr. Newbury graduated from the University of Melbourne in 1945. He attained his Master of Dental Science in 1948. In 1951, following further academic experience, Dr. Newbury began a specialist private practice in orthodontics in Melbourne.

He began a distinguished career with the FDI in 1970, when he was appointed to represent the Australian Dental Association at the FDI World Congress in Bucharest. He served over the years on several FDI committees including the finance, publications, nominations and scientific committees.

In 1975, Dr. Newbury was elected to the FDI Council, and served as Treasurer of the FDI in 1978. He was elected to the President's chair in 1985 at the FDI Congress in Belgrade, Yugoslavia.

Among his non-dental honours, Dr. Newbury, in 1978 was made a Commander of the Order of the British Empire (CBE) in the Queen's New Year's Honours List.

He is survived by his wife Isabel and three sons, who are also dental practitioners.

CDA OFFICIALS MEET WITH MINISTER OF HEALTH

On May 28, 1986, CDA's Management Committee (1985-86) met with the Honourable Jake Epp, federal Minister of Health and Welfare.

Present were the then President Dr. Bradley Holmes, then Past-President Dr. Ralph Crawford and then President-Elect (now President) Dr. John Robertson, A. Jardine Neilson, Executive Director,

Dr. W.R. Bedford, David Nicholson, Assistant Deputy Minister (ADM) — Medical Services Branch and Dr. Peter Glynn, ADM — Health Services and Promotion Branch.

Such key issues as the Canada Health Act, the National School of Dental Therapy, the Medical Services Review Team and the CDA Brief to the Legislative Committee on Bill C-96 were discussed.

The meeting took place as a part of CDA's ongoing Government Relations activities.



(Left to Right) Dr. Peter Glynn, David Nicholson, Dr. John Robertson, Dr. Ralph Crawford, Health Minister the Honourable Jake Epp, Dr. Bradley Holmes and A. Jardine Neilson.



Mr. Epp (beside Dr. Holmes) also posed separately with the then CDA Management Committee.

Photos: André Sima

CDA TEACHING CONFERENCE HELD IN HALIFAX, N.S.

"Periodontics and the Dental Curriculum" was the theme of the Canadian Dental Association Teaching Conference, held in the Halifax Sheraton Hotel, June 20.

Chairman of the proceedings was Dr. Crawford Bain, Head, Division of Periodontics, Faculty of Dentistry, Dalhousie University.

The Conference immediately preceded the Canadian Academy of Periodontology Annual Scientific Meeting, also held at the Halifax Sheraton.

Speakers

In the morning session, four speakers of international stature made presentations: Dr. Jukka Ainamo, Professor of Periodontics, University of Helsinki, Finland, and visiting epidemiologist, National Institute of Dental Research, Bethesda, Maryland; Dr. John Eisner, Associate Professor of Community Dentistry, Faculty of Dentistry, Dalhousie University; Dr. Max Listgarten, Chairman, Department of Periodontology, University of Pennsylvania, Philadelphia, and Dr. David Donaldson, Assistant Dean, Faculty of Dentistry, University of British Columbia, Vancouver, B.C.

Dr. Ainamo spoke on "Curriculum Changes Based on Changing Disease Patterns", Dr. Eisner, on "Curriculum Changes Based on Teaching Advances", Dr. Listgarten presented on the subject of "Curriculum Changes Based on Research Developments", and Dr. Donaldson spoke of "Interdisciplinary Relations-Implementation of Change in a Dental Faculty."

(Texts of these papers will be published in the JCD A shortly).

Working session

Those in attendance gathered following the presentations, in groups at a working lunch session.

Offering leadership in these sessions were: Dr. Trevor Chin Quee, Director, Division of Periodontics, Faculty of Dentistry, McGill University, Montréal, who led a session in "Disease Patterns"; Dr. Paul Schuller, Chairman, Division of Periodontics, Faculty of Dentistry, University of Alberta, conducted a session on "Teaching Advances" Dr. David Singer, Head, Department of Diagnosis and Surgical Sciences, (Periodontics), College of Dentistry, University of Saskatchewan, led a discussion on "Research Developments", and the new Dean of Dentistry at Dalhousie University (then Dean-elect),



The presenters at the CDA Teaching Conference in Halifax pose with the chairman, Dr. Crawford Bain, extreme left. From Dr. Bain's left, they are: Dr. Max Listgarten, Dr. John Eisner, Dr. David Donaldson and Dr. Jukka Ainamo.



Dr. Trevor Chin Quee, right centre, comments on "Disease Patterns" during the working lunch session at the CDA Teaching Conference in Halifax.



Dr. John Eisner, centre background, listens pensively during the working lunch session at the CDA Teaching Conference in Halifax.



Dr. David Singer, centre background, discusses "Teaching Advances" with his working group session at the CDA Teaching Conference in Halifax. Dr. Max Listgarten, who gave one of the major presentations at the Conference, is seen on Dr. Singer's right.

Dr. Kenneth Zakariasen, conducted a session on "Implementation."

The working group leaders then returned to the formal meeting, presented consensus reports, and participated in a panel discussion.

Citadel dinner

The event was concluded in memorable fashion with a traditional roast beef and Yorkshire pudding dinner, served by candlelight in the officers' quarters of historic Halifax Citadel.

QUEBEC HEALTH INSURANCE PROGRAMS COST MORE IN 1985-1986

In a recent annual report to the National Assembly in Quebec, Therese Lavoie-Roux, Minister of Health and Social Services, announced that health insurance programs cost 11 per cent more in 1985-86, than they did in 1984-85.

Among the programs which contributed to the increased costs was a program of incentive measures given to dentists and physicians. In 1985-86, \$2,618,000 was distributed to dentists and physicians to offset costs for travelling, continuing education, moving or practising in a remote location. So far in 1985-86, the Health

Insurance Board of the Province of Quebec has received 1,995 claims under the incentive program, 447 from dental practitioners.

The Health Insurance Board also gave \$2,900,000 to regional health boards and social services to help physicians to settle into remote areas and begin practice full time in locations where there is a lack of health professionals in the province.

Other programs which increased included the Medical Services Program and the Drugs and Pharmaceuticals Program. Under the latter scheme, the increase was due to a broadening of eligibility. As of October 1, 1985, widows and widowers who were 60-64 years old and who were collecting Old Age Security benefits, could claim for drug benefits.

BRIGADIER-GENERAL JAMES N. WRIGHT RETIRES

Brigadier-General James N. Wright, Director General Dental Services for the Canadian Forces, retired recently.

A longtime supporter and member of the Canadian Dental Association, General Wright was a member of CDA's Executive Council and Executive Liaison to the Council on Health Care, and Chairman of CDA's Committee on Salaried Dentists. As well, General Wright was a member of CDA's Membership Committee.

He began his military service in 1953 and obtained his dental degree from the University of Alberta in 1956. He has served in all three branches of the Canadian Forces: Army, Navy and Air Force and served the United Nations in Egypt as senior dental advisor to the United Nations Emergency Force.

He is a certified specialist in periodontics and holds a Master of Science degree in oral pathology. General Wright is also a graduate of the National Defence College. He is a Fellow of the International College of Dentistry and the Academy of International Dental Studies. He is a member of the executive of the Commission of Defence Forces Dental Services of the FDI and is chairman of the Commission's Working Group on Field Dental Equipment.

General Wright leaves the Canadian Forces to take up a position as head of the Department of Stomatology, Faculty of Dentistry, University of Manitoba.

General Wright's replacement as Director General Dental Services will be Brigadier General John Frederick Begin of Moncton, New Brunswick.



Brig-Gen J.N. Wright



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

DID YOU KNOW: The CDA maintains a "Sacred Trust" — the *Accreditation* process for educational programs preparing Dentists, Dental Specialists, and Dental Auxiliaries for their professions, and the same Accreditation process reviews hospital and institutional dental services and associated residencies or internships.

DID YOU KNOW: That the first formal approach to accreditation occurred in 1950 when the CDA appointed a survey committee to examine and report on the five dental schools then in Canada. Following a series of site visits, (each dental school was visited twice), the committee in 1956 granted accreditation status to each of the five schools.

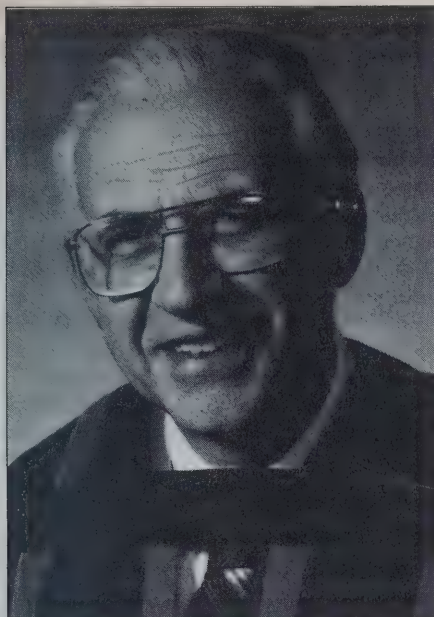
DID YOU KNOW: That 30 years after that first report, the current 17 member Council of Education and Accreditation, chaired by Dr. Arthur Schwartz, Dean of Dentistry at the University of Manitoba, continues to administer the same "Sacred Trust" process which involves establishing national standards for programs of dental services and carrying out on-site accreditation surveys which measure individual programs or services against the national standards.

The CDA accreditation process for Dental Education is a vital part of the certification and licensure process for dentists since the National Dental Examining Board of Canada grants certificates to current graduates of *accredited* programs. Possession of the NDEB certificate qualifies a dentist for licensure in all 10 provinces. Under a reciprocal agreement the American Dental Association also honors those educational programs recognized by the CDA accreditation process.

DID YOU KNOW: That the "Sacred Trust" has grown from five site visits in 1956 to 124 accreditation visits that now have to be made on a rotational basis. Under the direction of Mr. Brian Henderson, CDA's Director of Accreditation, surveys are carried out in 10 dental undergraduate programs, 20 dental specialty programs, 33 dental hygiene programs, 26 dental assisting programs and approximately 35 hospital or institutional dental services and associated programs.

In 1985-86 alone, CDA granted accredited status to five hospitals and 36 separate educational programs, including one dental specialty program, eight dental hygiene programs and 10 dental assisting programs all of which were applying for accreditation for the *first* time.

DID YOU KNOW: In 1986 the total budget for accreditation is approximately \$290,000.00, with expenses, partially offset by grants (totalling \$106,000.00) from provincial licensing authorities, NDEB, ACFD, and the institutions themselves. The expenditure of these monies — almost 10 per cent of the *total* CDA budget — is indeed a "Sacred Trust", for it assures the people of Canada that dentistry — the CDA — is responsible for the highest of dental educational standards.



Dr. E.R. Ambrose honored for contribution.

SASKATCHEWAN COLLEGE CONVENTION PROVIDED 'PIONEER' FLAVOR

Delegates to the Annual Convention of the College of Dental Surgeons of Saskatchewan were encouraged to let their hair down, cover it with a ten-gallon hat, and snug-up the knots in their bandannas at the session in Swift Current, June 5-8.

They were encouraged to dress in pioneer attire in keeping with the decidedly Western flavor of the Frontier City.

Convention Chairman Dr. Dave Busse arranged a memorable program offering continuing education, an enjoyable social program, golf, a barbeque Western-style and a round of special events for the spouses.

CDA President speaks

CDA President Dr. Brad Holmes was a guest speaker at the Convention and he was accompanied by CDA Executive Director A.

Jardine Neilson, who commented on activities on behalf of CDA member dentists.

Former Dean honored

Dr. Ernest Ambrose, former Dean of Dentistry, College of Dentistry, University of Saskatchewan, was honored by the College of Dental Surgeons of Saskatchewan for his many contributions to dentistry in that Province. The College made a presentation in recognition of his services.

THE NATIONAL DENTAL EXAMINING BOARD OF CANADA

This is the fourth in a series on Dental Organizations in Canada

Assessments and Conclusion

The NDEB's commitments, that only competent candidates shall receive the NDEB certificate for general practitioners or for specialists, and that the examinations and test criteria shall be fair tests of one's ability to meet Canadian competence standards, have been The Board's guiding principles from the day it received its Charter.

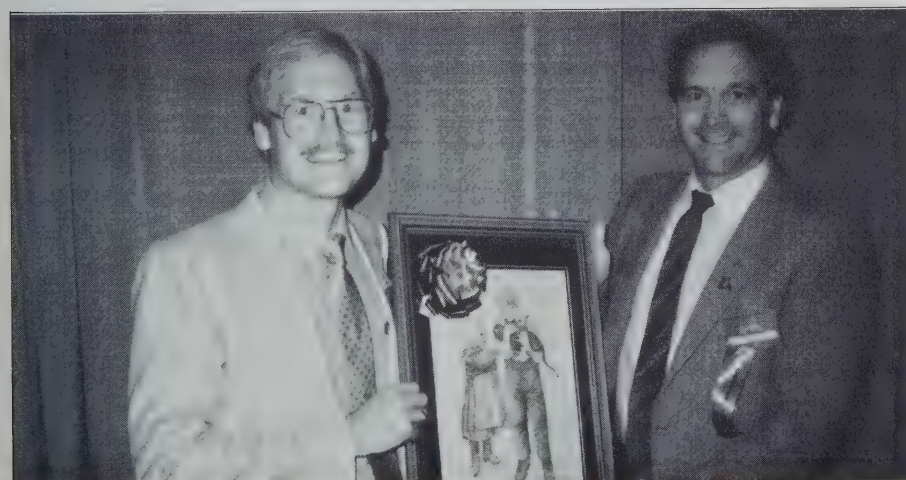
Each year The Board re-assesses its examination procedures and the responses of the candidates, making adjustments where indicated to improve the fairness of the tests and the methods of measuring the results, as well as to have the tests timely in relation to the changing patterns of dental practice in Canada. Two standing committees of The Board assume this responsibility. They annually review the standards and procedures of the written and clinical examinations and make recommendations to The Board for improving future examinations. In addition to this ongoing self-examination, two other major recent attempts to evaluate and update should be noted.

As previously stated, the success of the accreditation — certification — licensure process depends heavily on the accreditation program as administered by the Council on Education and Accreditation of the CDA. The NDEB and the provincial licensing authorities must be satisfied that graduates of the approved programs meet Canadian competency standards for dental general practitioners.

In 1983, the NDEB proposed that an examination of the accreditation mechanism of the CDA as it relates to the granting of certificates by the NDEB be undertaken. As a first step in such an examination, an opinion survey was suggested to determine how the accreditation mechanism is perceived by those who are or have been directly or indirectly involved in it, or who are affected by it. The objective was to determine the



Dr. Jack Niedermayer, left, Saskatchewan member of CDA's Board of Governors, presents a unique artistic photograph of two loons on a Northern Saskatchewan lake, taken by Dr. Thurston Tomlison of Prince Alberta, to guest A. Jardine Neilson, Executive Director of the CDA.



Dr. W. Murray McKechnie, President of the College of Dental Surgeons of Saskatchewan, left, makes a presentation of a framed original sketch by a Saskatchewan artist, to guest speaker Dr. Brad Holmes, President of the CDA.

opinion of as many knowledgeable persons as possible on the acceptability of the CDA's current accreditation mechanism as an integral component of the complex accreditation-certification-licensure process.

The survey identified a few areas in which adjustments in the accreditation mechanism might be considered. But the general reaction of the respondents was that the accreditation mechanism as administered by the Council on Education and Accreditation, adequately supported the NDEB policy of granting certificates to graduates of Approved schools in Canada. There was also strong support for the NDEB to continue this policy.

The second recent major attempt to evaluate and update the NDEB's programs took the form of a 1985 Workshop on Preclinical and Clinical Examinations. The objectives of the Workshop were to determine what

alterations, if any, could be introduced to make the employment of the preclinical and clinical examinations better measures of a candidate's ability to meet current Canadian standards of clinical competence, or conversely the candidate's lack of ability to meet these standards.

The Workshop came up with a number of suggestions for making the examinations better measures of a candidate's competence. The most strongly supported opinion was that the preclinical tests should more readily distinguish between those candidates who should be allowed to proceed to the clinical tests from those who should not. Many of the recommendations emanating from the Workshop have already been adopted by The Board and have been implemented.

For those interested in more details concerning these two studies, full reports on "A

study of an Accreditation Mechanism to Evaluate Undergraduate Dental Programs in Canada and "Report of a Workshop on NDEB Preclinical and Clinical Examinations" are available from the NDEB office in Ottawa.

Conclusion

The NDEB takes seriously its mandate to certify dentists who meet Canadian competence standards and to provide an examination mechanism to test candidates who apply for this certification. The Board has already developed a high degree of sophistication with regard to the management of its examinations. Its efforts to improve the fairness and the reliability of these examination procedures continue as ongoing responsibilities.

LONG TERM DISABILITY — PROTECTING YOUR FUTURE

The chances of becoming disabled for at least three months before you reach age 65 are extremely high. For example, out of 1,000 people age 25, 541 will become disabled; that's a 54 per cent possibility that you will be unable to practice dentistry for 90 days or more. At age 35, the chances of a disability are 51 per cent, and at ages 45 and 55, the chances of suffering a disability before age 65 are 45 per cent and 32 per cent, respectively.* In 1985, 276 new LTD claims were received by CDSPI. At December 31, 1985, 417 of the Plan's 6,849 participants (6.1 per cent) were receiving disability payments. Statistics from the CDIP claims indicate that accident is the leading cause of total disability, accounting for 30.7 per cent of the claims experienced by the Plan since 1978. Other causes include heart related problems (9 per cent), back problems (7.4 per cent), psychological problems (5.6 per cent) and the list goes on. These figures indicate that LTD should be a vital part of your insurance planning.

Things to Consider

Setting up a Long Term Disability insurance program requires careful attention to individual circumstances and needs.

The following are some of the things to consider in deciding the amount of coverage you need.

- **Marital status** — Is your spouse a professional? Currently working? Able to return to the work force in the event of a family emergency?

- **Dependents** — The number of children you have, their ages, and how many years the youngest child is likely to be a dependent.

*Source: 1964 Commissioners' Table

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by Cuspid

WRESTLING WITH STRESS

Sturm und drang the Germans called it — storm and stress. It was the name of an entire literary period in the 18th century . . . and in World War II a slogan for what the Nazis would inflict on their enemies.

Today's storms and stresses are psychological ones . . . and perhaps more has been written about stress, and how to cope with it, than just about any topic other than money or sex. Just reading about stress can be stressful . . . so I'll try to be soothing.

While dentists seem to rank high among professional groups for such stress-related markers as suicide, hypertension, alcoholism and emotional illness, according to a study reported in the *Journal of the American Dental Association* (July, 1984) the overwhelming majority of them believe that they are under much less or somewhat less stress than their fellow dentists.

While it's true that three-quarters of the almost 1 000 dentists surveyed in the *JADA* study perceived dentistry to be more stressful than other occupations, many of the reported causes of stress — patient's anxiety, uncooperativeness, pain threshold and falling behind schedule — are really beyond the dentist's control. In fact, among 25 possible causes of stress listed in the *JADA* article, falling behind schedule was cited most often by respondents . . . with 'striving for perfection' also rating high on the list.

Well, if it's any comfort to you, meeting deadlines and keeping pace with rapid advances in technology are common to many professions. In my own craft, for instance, this piece might have been written by my predecessors in longhand, dispatched to the organ in which it was destined to be published when they were good and ready, and printed in hot metal type. But here am I struggling with a word processor . . . your editor wants the piece today — and she may very soon have the capacity to transmit it instantly to the printer by computer.

Stress itself isn't the problem, it's how we respond to it. In an article in *Dental Management* (September, 1984) authors Thomas and Hudson suggest that dentists — and anybody else — can cope with stress by building resistance through regular sleep, balanced diet and good health habits; by compartmentalising work and non-work life; by engaging in regular exercise for cardiovascular endurance; by talking out professional issues with staff, and by learning to withdraw physically from potentially stressful situations by taking relaxation breaks. Others have suggested that biofeedback and meditation are useful antidotes.

I would add to these suggestions the notion of counting your blessings instead of your stressings. As dentists, you enjoy high professional prestige and income, a large measure of control over your working life, a sense of worth in helping one's fellow beings . . . and the opportunity to pursue interests, hobbies and travel.

I suppose the thing to stress is that, yes, dentists do have stress — but so do other groups in society. And, to paraphrase: Dentist, pace thyself.

• **Expenses** — How much money is currently needed each month to provide for your current lifestyle? If you are spending \$5,000 per month for food, shelter, entertainment, car expenses, etc., this is the level of income to be replaced NOW if disability prevented you from working.

• **Other Sources** — You may have other sources of income that supplement your regular income, such as investments. However, you would probably not want to depend on your savings during a disability because they could be drained quite rapidly.

It is in your best interests to obtain as much disability insurance as you can while you are in good health. Many private insurance plans do not have a maximum amount of LTD available, but they do use an income ratio guide that allows you to insure up to a certain percentage of your pre-tax income. The CDIP allows you to insure up to 100 per cent of your pre-disability income, up to an overall Plan maximum. This Plan maximum is high enough to allow most dentists to insure their full income; however, some high income earners may find it necessary to combine private insurance with the CDIP to cover 100 per cent of their pre-tax income.

Choosing a Waiting Period

Once you have decided how much coverage you need, the next major decision is the waiting period, sometimes called an elimination period. This is the length of time you must be disabled before collecting disability benefits.

There are usually a number of alternatives available. The CDIP offers three waiting period options:

• **OPTION A** — Benefits payable from the first day in case of accident, or hospital confinement and the 8th day in the event of illness not requiring hospitalization.

• **OPTION B** — Benefits payable from the 31st day for accident or sickness.

• **OPTION C** — Benefits payable from the 91st day for accident or sickness.

The number of days required to satisfy the waiting period can be accumulated NON CONSECUTIVELY, within specific limits, i.e. the 90-day waiting period can be accumulated over a time span of six months provided that there is no longer than two weeks between periods of disability. All three plans include residual benefits in the event of a partial disability, with the benefit based on the percentage of lost income.

A dentist can choose to carry LTD insurance in one, two, or all three of the above waiting periods, as long as the total coverage does not exceed the overall maximum available under the CDIP.

The flexibility of the CDIP Plan allows you to tailor your insurance coverage to your individual needs.

For example, a newly established dentist may wish to carry all or most of his/her LTD under Option A. This allows for maximum protection, with virtually no drain on personal savings — an important consideration for a dentist in the process of establishing a practice, or anyone with a low savings rate for whatever reason.

When a young dentist's practice has been built up, allowing for a more predictable income level, he/she can change some or all LTD insurance to Option B or C, or a combination of these, and thus enjoy a lower premium commitment.

One criterion for this decision may be the level of personal savings considered expendable. For example, ask yourself how long you could exist comfortably with no income. One way of designing coverage that is effective for many situations is to have some coverage under each waiting period, with the minimum you need immediately to maintain your lifestyle under Option A, the bulk of your coverage under Option B, and additional coverage designed to protect you against a lengthy disability under Option C. The flexibility of these three options allows you to maximize protection while minimizing its cost.

Cost of Living

Another option to be considered is the Cost of Living Adjustment provision (COLA). The level of the adjustment varies with different insurance companies, but the basic idea is to protect your future income level in the event of a lengthy disability. Without COLA, your LTD benefit is fixed at the original amount, regardless of how many years the disability lasts, perhaps resulting in a serious decline in a disabled dentist's standard of living.

The CDIP's Cost of Living Adjustment Option provides an annual increase of 10 per cent of the original LTD benefit amount for as long as the disability continues. The COLA option may be added to some or all coverage under each of the waiting periods discussed above.

Generally it can be said that anyone of a young age, right up to about age 60, should include the COLA provision in his/her LTD plan. The younger you are, the more important it is to be protected against inflation. Perhaps at a younger age all coverage should have COLA, while at older ages, the COLA on some of your coverage can be dropped, while maintaining the protection on the bulk of your coverage.

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	July 28, 1986	June 27, 1986
Fixed Income Fund	53.24317	52.68453
Common Stock Fund	117.83108	120.83404
Money Market Fund	35.33760	35.07390
Balanced Fund	22.15451	22.35985

Interest rates:

Guaranteed Fund Term	*Interest rates as at	
	July 28, 1986	June 27, 1986
1 yr	8.55%	8.70%
2 yr	8.90%	8.90%
3 yr	9.45%	9.40%
4 yr	9.65%	9.55%
5 yr	10.15%	10.10%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

July 28, 1986	June 27, 1986
\$62,154,332	\$61,828,988

For further information:

Write: Canadian Dental Service Plans Inc.
Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada and Ontario Area Code 807 only	1-800-268-5418
Quebec and Ontario, (except Area Code 807)	1-800-268-3411
Metro Toronto Area	497-7117

Other Options

Insurers have developed a host of options which are marketed aggressively as "add ons" to private Long Term Disability or Income Replacement insurance plans. It is the opinion of our consultants that most of these extra cost options are merely a way of increasing the overall premium and may have little merit for a person in dentistry. For example, an option that provides for an additional daily hospital allowance requires a premium that may, in most cases, be better applied to the purchase of more Basic Long Term Disability Insurance with benefits payable to age 65.

We all know what "options" do to the total price paid for an automobile where you may have little choice. You need and want the car, so you *MUST* buy the options.

When you purchase Long Term Disability Insurance you are *NOT* obliged to buy all the options. You can be very selective, and decide what extras *you* are prepared to pay for with after-tax dollars. Keep *control* of your buying decisions — do not be influenced by any other source unless you are sure it is in your best interests.

The CDIP has chosen to keep its Plan simple, and the special features considered important have been negotiated into the Master Contract with the insurer so that they are available to all participants at no additional charge. Two examples of this are the Future Insurance Guarantee and the Guaranteed Conversion Privilege.

The Future Insurance Guarantee allows participants to apply for additional insurance without providing evidence of insurability at certain points in time.

The Guaranteed Conversion Privilege ensures that if the CDIP is cancelled by the CDA and replacement coverage is not avail-

able from any source, the insurance company will offer all participants equivalent individual coverage on a non-cancellable, guaranteed renewable basis. The premiums for the individual policies are negotiated and contractually determined every four years, competitive with current individual LTD policies available privately.

Trading Off

Long Term Disability insurance is really a "Trade Off of Dollars". In the event of a disability you will trade off the usual income you earn for the amount of LTD benefits you have. Would you be happy with your own Trade Off if you became disabled today?

Good intentions, unless acted upon, remain only good intentions with no guarantees and no monthly disability cheques. Do not get caught with a file full of good intentions; act *NOW* to protect your future.

The Canadian Dentists' Insurance Program is your program — call us first!

NIDR SEEKING VOLUNTEERS FOR JAW SURGERY STUDY

The National Institute of Dental Research (NIDR) is currently seeking volunteer patients to participate in a new study on a new technique to prevent post-surgical jaw movement.

The technique which will be studied will allow jaw surgery patients to move their jaws five days after surgery has been completed. The jaws are secured by metal plates and screws implanted in the jaws, rather than secured by the traditional method of wires.

Traditionally, to prevent unwanted move-

ment following orthognathic (jaw) surgery, the patient's jaws are wired shut and speaking and eating are severely curtailed. The healing process thus takes much longer. "Non-rigid fixation" is the traditional method of wiring the jaw shut after the jaw has been repositioned in surgery. The wires act in the same way as a cast on a broken bone, and must stay in place for six to eight weeks.

The new technique being researched in the study is known as rigid fixation. Dr. Jaime S. Brahim, an oral and maxillofacial surgeon, and overseer of the study, and his team, will implant titanium mesh plates and screws into patients' broken jaws at the time of surgery. The plates and screws will secure the healing jaw and remain in the mouth permanently.

The research study will compare the traditional method of orthognathic surgery with the new technique. Dr. Brahim and his team will also be studying any changes which occur in the swallowing and speech habits of the participating patients.

Patients participating in the NIDR study may be required to wear braces for nine to 12 months before surgery and up to six months after surgery. The whole process could take up to two years.

Healthy individuals between the ages of 16 and 48 who have facial bone defects or severe malocclusion of the teeth will be considered for the study. Persons interested in participating in the study, which requires 40 volunteers, should have their own dentist write a letter of referral to: Dr. Jaime Brahim, Dental Clinic, National Institute of Dental Research, National Institutes of Health, Building 10, Room 1B-20, 9000 Rockville Pike, Bethesda, Maryland, 20892. USA.

Where There's a Will — There's a Way

If dentistry has been good to you, shouldn't you consider an investment to enhance the profession and help improve the dental health of all Canadians?

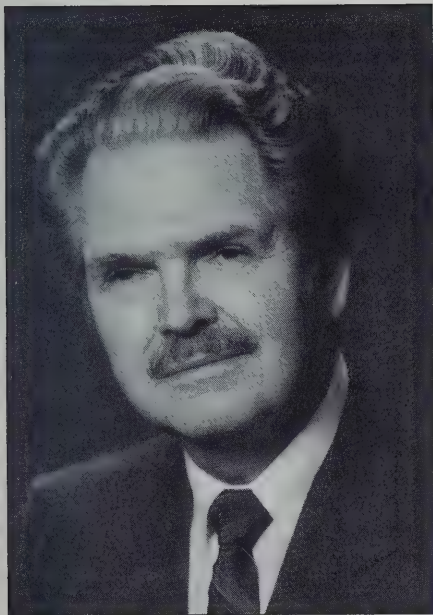
Naturally your family and friends deserve your first attention and their future must be looked after. But what about the balance of your estate — the residue over and above the needs of your loved ones and friends?

It's easier than you might think. Just insert one little sentence in your will — "I give to the Canadian Fund for Dental Education the sum of dollars".

Canadian Fund for Dental Education
Suite 205, 44 Eglinton Avenue West
Toronto, Ontario M4R 1A1
Tel. (416) 481-0650



Briefly



Dr. P. Ralph Crawford

Dr. P. Ralph Crawford, a past-President of the Canadian Dental Association, was recently elected to the Board of Directors of the American Society for Geriatric Dentistry.

Dr. Crawford is well qualified for his position with the Society, having recently served as coordinator of the Geriatric Dental Program of the University of Manitoba Faculty of Dentistry. He is also a member of the Pierre Fauchard Academy and a Fellow of the International College of Dentists.

One of the first women dentists to practice in Canada passed away recently in Brantford, Ontario.

Dr. Hazel Edna Smith was born in Norfolk Township and got her first degree in dentistry from the Chicago School of Dentistry, at Chicago University in 1916. She practiced in Iowa after graduation until 1924.

Dr. Smith came to Canada and graduated from the University of Toronto in 1925. She began practice in Brantford, Ontario in 1928, retiring from active practice in 1966.

At the time of her death, Dr. Smith was still residing in Brantford, Ontario. She passed away at the age of 98.

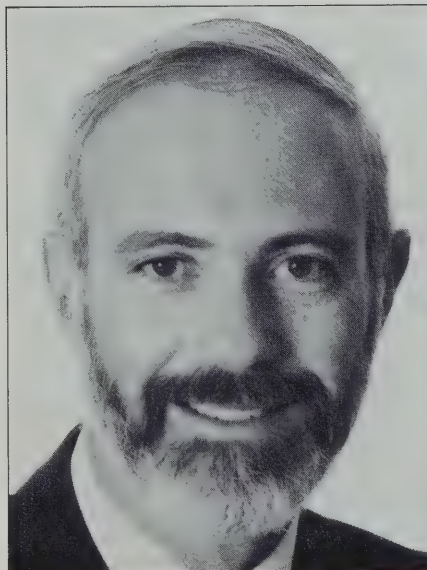
Dentists in the Durham region of Ontario were honoured recently for their generous contributions to Durham College in Oshawa Ontario.

The College, which offers programs in both Dental Assisting and Dental Hygiene (both CDA accredited), presented plaques to 32 area dental practitioners for donations of \$1,000 each to the College dental facilities.

Also recognized for their donations to the College were the Durham-Ontario Dental Society, a component society of the ODA, and Seal Lab Group each of which donated \$10,000. The Durham-Ontario Dental Society's contribution was used to dedicate the College's dental centre, while Seal Lab Group's funds were used to dedicate the dental laboratory. Dr. Peter Zakarow also received a plaque for his contribution to the dental clinic in the amount of \$4000.

Many of the dentists' contributions to the College went to support bursaries and scholarships to the dental programs offered at the College.

Dr. Barry H. Korzen, Associate Professor and Head of Endodontics at the Faculty of Dentistry, University of Toronto, has



Dr. Barry H. Korzen.

recently been appointed Director of Alumni Affairs.

The new Alumni Affairs department will, it is hoped, re-introduce the Faculty of Dentistry to its alumnae. Another function of the new department will be to encourage communication between the practicing dentist and the University.

An executive of alumnae will be formed and appointments to the various standing committees of the Faculty will be made.

In this year's graduating class at Laval University's Faculty of Dentistry, 37 students were graduated.

Of these, 30 new graduates were male, while seven were female. Keynote speaker at graduation ceremonies was Dr. Gustave Lachance, a retired member of Laval's dental faculty. Dr. Lachance told those in attendance that his wish for the new graduates was that they become "enlighteners of society."

Following receipt of their diplomas, the graduates received their licenses from Dr. Marc Boucher, President of the Ordre de Dentistes du Québec. The top students in the graduating class, (those with the best grades over the four year period) also received a prize from the Ordre.

Dr. Boucher awarded Michel Deveau, François Moreau and Johanne Saucier with first prizes, while second prize was awarded to Paule St-Hilaire.

Attention CDA members. A problem with the mailing labels adhering to the Journal has been brought to the attention of the Editor. Should you not receive your Journal, please advise the Journal staff and we will be happy to replace it, if at all possible. The problem was first noted in the Vancouver area, but may have affected some other areas of the country as well. Although we cannot guarantee to have enough Journals to replace an excessive number, which may have gone astray, we will attempt to help you whenever possible. Rest assured that this "un-sticky" situation has been reported to our mailing house and remedied.

A resolution adopted unanimously by the executive board of the American Association of Women Dentists (AAWD) emphasizes that organization's opposition to the unsupervised practice of dental hygiene in the United States.

In this first formal policy statement on this practice, the 65-year-old AAWD noted that unsupervised practice by hygienists is opposed because "it is not in the interests of good oral health."

The President of the AAWD, Dr. Jacqueline Cresswell, said that the United States enjoys "the highest level of dental care of anywhere in the world", and "we are concerned about any efforts that would risk reducing that quality of care."

The statement noted nine specific functions and procedures the AAWD believes should not be delegated to dental hygienists, because "safe and effective performance depends upon making judgements that require synthesis and application of knowledge acquired in professional dental education." Those functions are as follows:

- diagnosis and treatment planning
- surgical or cutting procedures on hard or soft tissues

- prescribing drugs, medicaments and preparing work authorizations
- taking impressions for fabrication of fixed or removable restorations or appliances
- making occlusal adjustments
- performing pulp capping and pulpotomy procedures
- placing and adjusting fixed and removable prosthodontic appliances
- intraoral restorative procedures; and,
- administering local general anaesthetic agents.

A recent study by the University of Michigan shows that you don't have to change your toothpaste to reduce cavities: just change your religious affiliation.

The study shows that Amish children have half as much tooth decay as other American children, even though they consume generous amounts of sugar and do not practice regular oral hygiene.

The study also indicated that members of the Amish community show levels of gum disease that are 3.6 times lower than the average for the entire United States, even though only one in 12 Amish surveyed used dental floss.

Professor Robert Bagramian, of the dental faculty at the University of Michigan said the Amish diet which is low in processed foods and refined carbohydrates (other than sugar) appeared to be responsible for the results.

Computers can now help change the way patients look.

Using personal computers, and three dimensional CT scans of facial structure, oral and maxillofacial surgeons can now predict the outcome of dentofacial reconstructive surgery. The CT scans are fed into the computer, and an illustration of the head, which will appear on the screen, can be rotated or certain portions of the facial structure can be moved on screen. The computer can also be used to help predict projected facial growth and tooth movement.

The screen image is not a line drawing, but an actual photograph of the patient's face, so patients can actually see how they will look after facial reconstructive surgery is completed.

The technique also aids oral and maxillofacial surgeons in determining the proper treatment for each specific patient and to identify any potential problems.

ARE YOU WILLING TO BEAT CANCER?

Of course you are. We all are. But it takes more than wishful thinking. It takes money.

Only two-thirds of the Canadian Cancer Society's total costs can be met by our annual fund-raising campaign. We need bequests and other sources of income for the remaining third.

That's why we're asking you to please insert this one simple sentence in your will: "I give to the Canadian Cancer Society the sum of _____ dollars."

If you help us, expensive research programs can be continued and more can be initiated.

The magic word is 'you.' If you're willing, together we can beat it.

Canadian Cancer Society
CAN CANCER BE BEATEN? YOU BET YOUR LIFE IT CAN.

DENTAL AWARENESS PROGRAM UPDATE

Checking Up on the Checkup

The 2nd Annual Dental Checkup was a major feature of Dental Health Month '86. It attracted \$300,000 of support from Colgate. About 1,400,000 copies were distributed to households across Canada as a supplement to Chatelaine magazine's May issue. But did it work? Did it get the Good for Life message across? Did people read it? Learn from it? Credit CDA for doing it?

These were the questions asked by Chatelaine's research department in early May. A representative sample of Chatelaine's English-speaking consumer panel was polled. The results are in — and they demonstrate that the Checkup was a resounding success. The seasoned pros at Chatelaine are simply knocked out. Catherine Wilson, Chatelaine's account supervisor, says it in a word: "Great!"

- 83 per cent recall. About three weeks after the issue hit the stands, recall of the Checkup was outstanding. More than eight out of every 10 people who'd read the issue specifically remembered the Checkup. And of those, nearly half said they'd read most or all of it. How do those responses check out? "Both those figures — we call them the 'recall' and 'read-most' scores — are more than 20 per cent higher than typical advertising scores", says Chatelaine's research director Geoff Parker.

- 39 per cent took the test. Nearly four out of every 10 readers actually went through the quiz and tested themselves, question by question, on their dental know-how.

- 33 per cent saved the Checkup. An astonishing one out of every three readers kept the Checkup. "That's over three hundred thousand Canadians in English Canada alone", Parker adds. "And their comments indicated that they were generally interested in having it around for future reference."

- 68 per cent want more. Almost seven out of every 10 readers said they'd like to see it again. People were asked what topics they'd like to know more about; prevention and gum disease ranked highest.

- 56 per cent learned something. More than half the readers specifically said that they'd learned from the Checkup.



- Enthusiastic comments. "Pretty well everybody wrote in what they liked best," says Parker. Readers complimented the Checkup's scope and coverage. They found it clear and concise. And they liked the quiz format.

- 63 per cent identified CDA. About two-thirds of the readership credited CDA for creating the Checkup. Fifteen percent recognized Colgate's involvement as sponsor.

Says Parker, "The results here indicate that a very large number of people took the time to read the quiz and save it. Scores like these indicate a very strong performance." The Checkup has achieved phenomenal exposure, raised important issues — and more than 300,000 Canadians are keeping it as a household reference. For the Dental Awareness Program, it's overwhelming evidence that we're on the right track.

DAP on Tour

This fall, the Dental Awareness Program goes on tour — holding work sessions across the country to help each provincial dental association expand and develop their own awareness programming. The sessions will present an array of information, opportunities, and resources for provincial use:

- **Dental Health Month.** Presenting a detailed outline of Dental Health Month activities on a national level; offering advice to help provincial associations take advantage of DAP resources.

- **The years ahead.** Offering a practical

introduction and orientation to the Dental Awareness Program's second phase, so that provincial associations can coordinate their own activities with the national program — to enhance and reinforce both.

- **Market research.** Working to coordinate a joint CDA/provincial market research program — aimed at getting more detailed, more precise information about the dental needs, attitudes, and behaviour of Canadians in different regions.

- **Public and media relations.** Helping and encouraging provincial associations to develop and increase the effectiveness of their media relations. A recent DAP survey identified this as a target area for expanded activity — a basic, cost-effective and active way to change people's attitudes and behaviour.

Provincial associations have shown considerable enthusiasm for awareness programming. The tour should help provide CDA support and resources to provincial efforts.

Dental Awareness in the Office: A Seminar Series

Now that DAP has brought dental health to public attention, it's becoming a priority for individual dental teams to put the Good for Life message to work in their own practices.

In response to a demand from local dental societies across the country, DAP will be providing communication training seminars — helping dentists and auxiliaries develop effective practice communication plans and introducing them to various DAP resources.

Not only can communication training make a big difference to patients' experience of dentistry, but — since dentists and auxiliaries get little or no formal training in this area — these seminars can contribute significantly to individual professional development.

DAP conducted a pilot workshop in August at the Halifax CDA convention. Based on the Halifax experience and feedback from participants, we're refining the seminar and will be offering it in 1987 (at competitive course rates). Check with your local society or provincial association this fall for details.

Resource Centre de documentation

PERIODONTAL DISEASE AND THE GENERAL PRACTITIONER

LA PARODONTIE ET LE PRATICIEN GÉNÉRAL

1. Bhaskar, S.N. *For patients' best interests (letter)*. Journal of the American Dental Association, v. 109, no. 5, November 1984, p. 684.
2. Brown, I.S., Salkin, L.M. and Vanderveer, R. *The current status of professional relationships between periodontists and general dentists*. Journal of the American Dental Association, v. 102, no. 6, June 1981, pp. 854-858.
3. Carl, W. *Periodontics in the general practice (I)*. Quintessence International, v. 9, no. 11, November 1978, pp. 59-62.
4. Chace, R., jr. *The periodontal patient: a rationale for alternating recalls*. Journal of Dental Practice Administration, v. 1, no. 4, October-December 1984, pp. 171-174.
5. *Changing treatment needs of the post-fluoride generation*. Journal of the American Dental Association, v. 112, no. 3, March 1986, pp. 314-321.
6. Coxhead, L.J. *The role of the general dental practitioner in the treatment of periodontal disease*. New Zealand Dental Journal, v. 81, no. 365, July 1985, pp. 81-85.
7. Gupta, O.P. *The role of the general practitioner in periodontal care*. Journal of the District of Columbia Dental Society, v. 54, no. 2, Fall, 1979, pp. 32-41.

8. *How can and should the periodontist respond to the patient who asks "How long have I had this problem?: "Then why didn't my dentist inform me or refer me earlier?"* Journal of Dental Practice Administration, v. 1, no. 4, October-December 1984, pp. 148-152.

9. Listgarten, M.A. *A suggested guide for the general dentist regarding the responsibilities to his patients with respect to periodontal disease*. Pennsylvania Dental Journal, v. 50, no. 3, May-June 1983, pp. 30-31.

10. Neuman, D.M. *Perio problems: effective treatment and referrals*. Dental Management, v. 25, no. 8, August 1985, pp. 24-26.

11. Pattison, A.M. *Can dental hygienists affect the periodontal health of the nation? An assessment of the future of dental hygiene*. Journal of Public Health Dentistry, v. 45, no. 2, Spring 1985, pp. 69-75.

12. Repine, K.D. *Periodontal procedures for the general practitioner. Part I. Periodontal diagnosis, patient education, and referral procedures*. Compendium of Continuing Education in Dentistry, v. 4, no. 2, March-April 1983, pp. 125-130.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

1. Cripps, S. *Periodontal Disease: Recognition, Interception and Prevention: A Guide for the General Practitioner*. Chicago: Quintessence Publishing Co., 1984. 290p. 1 copy.
2. Newfacts, Inc. *Think Again Before You Say You're Fired!* St. Catharines, Ontario: Newfacts, Inc. 1986. 19p. 1 copy.
3. Thompson, Paul and Thompson, Evelyn. *Procom's 1986-1987 Dental Computer Guide*. Madison, Wisconsin: Professional Communications, Inc., 1986. 95p. 1 copy.
4. Wootton, Dorothy J. and Hamidani, Kerin S. *Case reasoning for Clinical Dental Hygiene*. Philadelphia: Lea & Febiger, 1986. 201p. 1 copy.




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twice a day.



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Two important benefits in one new formula.

Colgate has developed a new cavity-fighting fluoride formula dentifrice which also contains a soluble pyrophosphate. This safe, non-abrasive ingredient interferes with the build-up of supragingival calculus. Clinical trials^{1,2} have shown a 35.5% and 44.2% reduction in calculus formation in patients tested. The practical results of such significant calculus reductions are obvious at subsequent appointments: easier prophylaxes for both you and your patients.

Colgate Mint Toothpaste is an important advance in oral hygiene for patients who require calculus removal. Patients who develop hard, unsightly calculus will benefit from your recommendation to use Colgate Mint Toothpaste, in the gold box. They should begin to use it immediately following your scaling procedure, to enable the formula to work on freshly cleaned tooth surfaces. Of course those patients in whom calculus is not a problem will continue to benefit from regular use of Colgate's Regular, Winterfresh, or Gel flavours.



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"Colgate Toothpaste contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." Canadian Dental Association.

1. Schiff, T.G.: "The effect on calculus deposits of a dentifrice containing soluble pyrophosphate and sodium fluoride: a three month clinical study" *J. Clin. Prev. Dent.*, (June, 1986).
2. Lobene, R.R.: "A clinical study of the anti-calculus effect of a dentifrice containing soluble pyrophosphate." *J. Clin. Prev. Dent.*, (June, 1986).

Book Reviews

IMPRESSIONS FOR COMPLETE DENTURES

Bernard Levin

*Quintessence Publishing Co. Inc. 1984
Pages 223*

Dr. Bernard Levin's book is a pleasure to review. His easy style and deceptively simple explanations make the reading and learning process a delight. Perhaps other aspects of full denture construction would benefit from similar detailed works.

In relating anatomy to denture impressions and his description of dentist assisted "muscle molding" he excels. To be particularly recommended are the frequent frank statements as to the limitations of dentures and of the extent of movement expected of the patient during so called "muscle trimming".

Many denture borders are under-extended because of excess zeal in tongue movement. Dr. Levin clearly shows us "good impressions are made, not taken". Statements such as page 117, "small voids are present and will be corrected in the mastercast" give credence to his practicality. An impression that is good in every other way is probably better not rejected for minor voids which are easily corrected later and avoid the possibility of losing the overall quality of the impression as a whole. Patient and dentist can tire with needless repetition. Dr. Levin takes the reader through detailed step by step explanations and descriptions of his techniques exhibiting his wealth of knowledge and experience.

He subtly points out the need to develop skill in the use of techniques and materials. A suggestion for retaining the border detail and fullness achieved in impressions is given on page 153, for those using commercial labs for processing and finishing dentures.

The use made of frequent references to other pages and chapters is very refreshing and helps avoid redundancy without losing clarity.

Impressions For Complete Dentures is an excellent textbook for dentists and dental students to whom it is directed. The style of the author, the abundant information and appropriate illustrations made this work a worthwhile addition to any full denture library.

*This book was reviewed by
Gerald L. Locke
DDS, FRCD(C)
Calgary, Alberta*

THE DESIGN, CONSTRUCTION AND USE OF REMOVABLE ORTHODONTIC APPLIANCES

C. Philip Adams

*Wright, Bristol, 1984
Wright PSG Publishing Co. Inc.
Littleton, Mass.
\$20.00 U.S.
Pages: 224*

As Professor Adams notes in his preface, the fifth edition is a complete "re-arrangement" of the previous edition and a re-writing of it.

The book is well laid out with text illustrations usually on the same page. It is written in an engaging and compressed style. The first seven chapters are strongly positive in tone so that one is led to suspect that orthodontics is really quite simple. The caveat — a most important caveat — is in the introduction where we find:

"Surprising as it may seem, it sometimes appears to be thought . . . that ordontontics is the appliance. Too often it seems to be overlooked that orthodontics is the management of the developing and the developed occlusion, with or without appliances, whichever is more appropriate". And further: "It is important, however, to realize that there is an end in the road to clasp teeth . . . and, in the interest of the patient, it is better to turn to a more appropriate appliance discipline; to accept the fact that in certain cases fixed appliances must be used."

The revision retains the chapters on the general theory of how removable appliances work, the design of appliances, labio- and buccolingual tooth movements (as opposed to mesiodistal), expansion and intermaxillary and extra-oral traction, all well illustrated. A short chapter on rotation and root movement has been separated out and some topics, such as the Begg appliance, are covered more extensively than previously, although still very succinctly.

The treatment chapters are rounded out with an excellent discussion of Functional appliances in which attention is given to the limitations of such appliances. Thus, some situations for which the oral screen cannot be expected to produce improvements are described as well as those for which it is indicated. There is an excellent exposition of the variables to be considered in deciding whether or not to use an activator as well as detailed instructions for fabrication. Indications for use of the Frankel (or Function Corrector) are also given, followed by some

fabrication instructions. Case reports for both activators and Frankel appliances are presented. Finally, there is a very useful chapter on technical procedures including those for Adams clasps.

It is a measure of the utility of Professor Adams' text that it has been translated into Italian, Spanish, French and Japanese.

A careful perusal of this very reasonably priced text (\$27.00 Canadian) will be found to be rewarding for all students of removable and functional appliances and it is highly recommended to both generalists and specialists.

*This book was reviewed by
Dr. W. Stuart Hunter,
Faculty of Dentistry,
The University of Western Ontario.*

BURKET'S ORAL MEDICINE. DIAGNOSIS AND TREATMENT. EIGHTH EDITION

Malcolm A. Lynch Editor

*J.B. Lippincott Co.
Philadelphia, publisher. 1984.
958 pages, illustr.*

INTERNAL MEDICINE FOR DENTISTRY

Louis F. Rose
Donald Kaye

*C.V. Mosby Co.
St. Louis, publisher. 1983.
1427 pages, illustr.*

The City of Brotherly Love has a proud history of contribution to the continuing education of health science practitioners. In the forefront of this on-going information motherlode is the University of Pennsylvania's School of Dental Medicine, a venerable institution with a remarkable history of achievement spanning the eight decades of this century. In the past year, members of this teaching staff have authored or edited two textbooks that belong on the bookshelves of every serious student and practitioner of dentistry in North America. One of them is an updated edition of the classic volume first authored by Dr. Lester Burket in 1946 that has improved with each of its seven subsequent editions and the other fills a serious gap that has remained in our libraries for countless years — a thoughtful textbook on internal medicine that contains

practical information for the dental practitioner.

In their preface, Drs. Rose and Kaye note that "dental education has been remiss in adequately preparing the dentist to evaluate the general health status of a patient". While I disagree that the dentist should assume the primary responsibility for evaluating his patient's health status, he should, nonetheless, be able to have sufficient background to discuss with the treating physicians the patient's frailties, and most important, understand the information being conveyed sufficiently, to be able to ask further questions which may be pertinent to his projected treatment plan. No matter how complete a textbook is, and this one is remarkably informative, it is unreasonable and potentially hazardous to translate theoretical knowledge into clinical application without sufficient "hands on" experience. In our society physicians are still expected to practise medicine and dentists should not be encouraged to do the same. Notwithstanding this philosophical dicotomy, the discussion of the processes of various disease mechanisms and the clinical application of these processes through description of corresponding symptoms is concise and well organized. Most important, clarification of the discipline of proper diagnostic investigation and the pathways of current treatment modalities help to illuminate an often confusing maze of laboratory tests, unaccustomed antibiotics and alien medications that confronts the conscientious dentist.

As one can well imagine, the structuring of so much information will have certain imperfections, and although the authors assure us that cross-referencing has helped to simplify the search for specific information, the ferretting out of some data can be challenging. Trying to find a list of normal values for a routine multichannel blood investigation (the "SM 12" for example, that includes the likes of a BUN, FBS, Creatinine, Serum Electrolytes etc.) entails lots of page flipping and index consulting. While these values are almost second nature to most physicians, few dentists use these numbers on a sufficiently frequent basis to have them at their fingertips.

The textbook is arranged by organ systems, and the disease entities affecting them. When a disease can affect more than one organ system cross-referencing has been utilized to reduce duplication. The dental correlations of these diseases conclude each of the sections. In some instances this requires further page flipping to take the reader from the pages on the disease process itself forward to the section that discusses the dental implication. No big deal,

but it can be a little awkward in a book that's 1400 pages long.

So much for the new kid on the block. Happily, the old guy is more than the same old stuff with a new paint job. Virtually all of the chapters have been updated, revised or rewritten. Additionally a chapter on Sexually Transmitted Diseases has been added to reinforce their present importance. Unfortunately some of the "late breaking news" on Acquired Immune Deficiency Syndrome didn't make it onto the printed page, but this is an uncontrollable complication of textbook publishing.

The text is divided into three arbitrary sections entitled "Principles of Diagnosis", "Oral Disease" and "Systemic Disease". Most of those normal values one shuffles through innumerable pages of Rose's book diligently searching out, lie, marginally more accessible, in a chapter entitled "Diagnostic Laboratory Procedures". Because the chapter on "Oral Medicine in the Hospital" is inappropriate, if I was editing this text, I probably would have restricted the "Principles" section to chapters on diagnosis and laboratory procedures only.

For the most part, the section on "Oral Diseases" is a comfortable mix of clinical information laced with just enough microscopy to keep rusty slide viewers from becoming intimidated. Unfortunately, there are no coloured pictures, and this makes sections like "Red and White Lesions of the Oral Mucosa" far less effective than they could be. One of the highlights of this section is the chapter entitled "Oral Symptoms Without Apparent Physical Abnormality", which assists the frustrated dentist in putting into proper perspective, those frustrating cases where oral symptoms remain unsolved or the patient's complaints start to become disproportionate to the presenting pathology.

If some magical method could be discovered to allow it, wouldn't it be wonderful if the two different publishers could amalgamate the editor and author boards of these two volumes to produce one truly magnificent textbook? This would make the final section of Burket's Oral Medicine (on Systemic Diseases) unneeded, and with the costs thus reduced, allow the inclusion of colour plates without making the price totally unmanageable. It would also make further revisions of both texts less difficult. Until then however, we'll have to be satisfied with the added strength acquired by toting both of these extremely valuable references off the book shelf whenever their use is indicated.

*These books were reviewed by
Dr. John H. Gryfe,
an oral and maxillofacial surgeon
in Weston, Ontario.*

TEMPOROMANDIBULAR JOINT DISORDERS DIAGNOSIS AND TREATMENT.

M.H. Friedman
J. Weisberg

*Quintessence Publishing Co. Inc. 1985
Chicago, Ill.
Pages: 170*

This new entry into an overcrowded market is intended for general practitioners, orthodontists, physical therapists and students. Does it have anything new to offer?

Yes, it does: one author is a dentist in private practice and the other is a University-based physical therapist, and their approach is to consider the TMJ just like any other joint and then to apply appropriate modifications of well-tested physical therapy procedures to its treatment. Is the presentation of this material good?

Yes, mostly: the first two chapters on joints in general and the structure and function of the TMJ were co-authored respectively by a rheumatologist and an anatomist and they are concise and to the point without ducking controversial topics such as the functions of the two heads of the lateral pterygoid muscle and the movement of the centre of rotation of the mandibular condyle.

Three chapters cover the principles of diagnosis of soft tissue lesions, physical examination of the patient, and differential diagnosis and these are well done and useful in that much of the material will be new to dentists. The differential diagnosis section has enough background information about conditions which require referral to specialists to enable the referring dentist to confer intelligently with the health professional assuming care of the patient; this is a welcome addition to the dental literature.

Other chapters are less well-done. The section on etiology falls into the trap of assuming that the prevalence of TMJ disorders in the general population is accurately reflected in the population presenting for treatment, when epidemiological studies have shown that this is not so, and malocclusion is put at the top of the list of etiologies with no hint that this is a very controversial assumption, as is the relegation of psychological factors to a minor role.

The chapter on treatment is especially disappointing: there is no mention of the placebo effects of any of the treatments described, though these may account for more than half of the successes at any treatment centre, and though there is a quite justified warning against the use of applied kinesiology, there is an uncritical acceptance of the use of transcutaneous electrical nerve stimulation to establish vertical

dimension of occlusion when there is evidence that the device used neither stimulates nerve nor elicits a clinically-useful postural position.

In summary I would suggest that dentists and physical therapists who wish to increase their knowledge of this area read the introductory chapters and those on diagnosis and physical therapy treatment and give the rest a miss.

*This book was reviewed by
Dr. L.F. Greenwood,
Faculty of Dentistry,
University of Toronto.*

AN INTRODUCTION TO FIXED APPLIANCES

3rd Edition
K.G. Isaacson
J.K. Williams

Bristol, 1984,
John Wright & Sons, Ltd.
Littleton, Mass.
\$16.50 U.S.
173 pgs

An Introduction to Fixed Appliances is an excellent text which meets its stated objective: to provide a basic understanding of orthodontic treatment with fixed appliances. The book is compact but broad in scope. Topics include everything from attitude of the patient in preparation for orthodontic treatment, to band and bond cementation, removal and post-orthodontic supervision and retention. Very little knowledge concerning orthodontic therapy is presupposed on the part of the reader. Also included is a brief history of the development of edgewise appliances from P. Fauchard (1726) to the current lingual appliance. The material is clearly presented and the illustrations and photographs are well done.

A large part of the book is devoted to biomechanics. Anchorage is succinctly defined and informatively discussed. Extra-oral traction, arch form, molar control, canine alignment, incisor alignment, over-bite and overjet, and finishing procedures are covered in separate chapters. The nature of the orthodontic problem in each of these areas is discussed. Biomechanical techniques are selected on the ability of the technique to achieve the desired tooth movement. Most of the techniques are practical and almost exclusively involve round wire. Although there is a meshing of techniques, there are instances where the Begg technique, several edgewise techniques and removable appliance therapy are compared and contrasted. It is unusual to have authors who selectively utilize several orthodontic techniques and intertwine them to achieve

treatment objectives. Basic guidelines are included for such treatments as palatal and lingual arches, over-correction and retention. In general, the treatment concepts presented in this text are broadly recognized and accepted.

The authors omitted discussing diagnosis and treatment planning. Comprehensive or complex treatments are not illustrated. However, a concise but appropriate list of references is available at the end of each chapter to allow the reader to supplement the material presented.

This book would be beneficial to undergraduates and those dental practitioners who wish to have a preliminary insight into fixed orthodontic treatment.

*This book was reviewed by
Dr. Donald Cronin
Langley, B.C.*

ORAL SELF CARE STRATEGIES FOR PREVENTIVE DENTISTRY

Philip Weinstein, Ph.D.,
Tracy Getz, M.S.,
Peter Milgrom, D.D.S.

Reston Publishing Company Inc. 1985,
Reston, Virginia 22090
209 Pages
Softcover
\$14.95 US.

If I were asked to single out an area of study that would benefit the undergraduate dental curriculum, it would be in the emerging field of cognitive behavioral psychology as it applies to the successful practice of primary preventive dentistry.

The effective treatment of chronic, long-term dental problems, such as recurrent caries and periodontal disease, ultimately depends on successful behavioral modification. Patients must effectively be encouraged to help themselves modify their harmful nutritional habits, and to develop the level of oral hygiene necessary to control their recurrent dental problems. This necessitates a high proportion of self care relative to professional care.

The quality of the patient-professional relationship is dependent on the professional's practical understanding of the psychological variables that can be used to influence patient acceptance, co-operation, treatment plan, and prognosis.

This book is an invaluable reference for effective preventive program planning in the dental office. It is an updated version of a previous book: "Changing Human

Behavior: Strategies for Preventive Dentistry; 1978". It was written to help dental health care providers and students discover that, "Behavioral medicine — the application of behavioral principles of psychology to the health sciences has emerged as an important adjunct to the practice of both medicine and dentistry."

The book systematically presents the strategy of helping patients practice better home care, and at the same time helps the professional to manage problematic patient behavior in the office setting. It also encourages the reader to identify and work on various practice change projects while progressing through the book.

This assignment format provides a practical method for dealing with actual office situations and real problems worth working on, (from increasing patient brushing and flossing or headgear compliance at home, to decreasing patient anxiety or child misbehavior in the operatory).

Six separate steps to lasting behavioral change are carefully outlined by the authors, and supported by a wide range of practical techniques which also include the treatment of special patients, (i.e. children, the anxious, and the elderly).

There is a very important section on the effective use of positive consequences to increase the frequency of appropriate behavior, and on the limitations of using punishment to discourage the frequency of inappropriate behavior.

The importance of collecting and charting baseline data is stressed, in order to objectify the seriousness of problem behavior before you try to change it, to monitor the effectiveness of your change procedures, and to prevent patient relapse.

This approach has the advantage of not only helping dental professionals to communicate the benefits of oral self care, but it also provides the insight necessary to reduce stress and avoid professional "burnout".

There is also a series of appendixes which present a review, home care index, reinforcement schedule, relapse questionnaire, and annotated bibliography.

This book is highly recommended for dental professionals and aspiring students who are interested in developing a personal strategy for improving the quality of their communication skills and thereby affecting patient acceptance and awareness of the many benefits of primary preventive dentistry.

*This book was reviewed by
Dr. W.K. Hettenhausen
Executive Director
YOUR TEETH FOR A
LIFETIME FOUNDATION
Thunder Bay, Ontario.*

TISSUE-INTEGRATED PROSTHESES. OSSEOINTEGRATION IN CLINICAL DENTISTRY.

P. Brånemark/G.A. Zarb/
T. Albrektsson

Quintessence Publishing Co. Inc. 1985.
Chicago, Ill.
Price: £80 Sterling
Pages: 350

If you implant a piece of metal in the jaw bone and rest a denture or bridge upon it, how long will it work and can it damage the patient? Until recently the prudent dentist could only answer "I don't know". This text provides sound evidence from Brånemark and associates that at least one metal, titanium, is available that integrates into the jaw bone, allows epithelium to stick to it and supports false teeth without problems for at least 20 years.

The first chapter is written by Professor Brånemark, an orthopaedic surgeon. He uses beautiful illustrations to explain the biological problems of integrating implants into bone, — osseointegration, and summarizes the research and clinical techniques he has inspired for dental implants. There are few questions associated with the tech-

niques that he and his colleagues have not raised and examined closely at the University of Goteborg and the Institute for Applied Biotechnology in Goteborg. Each problem and its solution — bone attachment, metal selection, bone response to surgery, gingival junction — is presented by contributions from an impressive collection of scientists, gathered together over the last 20 years.

Then the irrefutable proof of success is presented in Chapter 10. To date 6,000 implants have been placed in 1,000 jaws at 70 universities or clinics and observed directly and radiographically using a standard examination. Success, defined as continuous bridge stability with clinical and/or radiographic evidence of implant osseointegration for at least five years, has been recorded for 95 per cent of the mandibular and 85 per cent of the maxillary implants!

In the latter part of the book, the surgical and prosthodontic procedures are explained and illustrated in great detail with colourful photographs and diagrams. The description of the prosthodontic techniques is a little confusing, possibly because of the separation of the clinical and laboratory steps into two chapters interrupted by a chapter explaining the relatively unexplored role of implants supporting overdentures and RPDs. This produces unnecessary repetition

and discontinuity. A similar criticism can be levelled at the two chapters describing the radiographic procedures used to monitor the implants and there is little to be gained from the chapter presenting a theoretical description of the biomechanics of a dental prosthesis. These were minor interruptions, however, to a clear and interesting description of complex clinical procedures.

The final chapter outlining some other medical uses of osseointegrated implants is fascinating and demonstrates that much of what we have achieved in dentistry can be useful to others.

Understandably, the cost of the book (approximately \$160) is high and may be of limited value to dentists in general practice. However, as a summary of the results of at least twenty years of clinical and applied research it is a milestone. The references at the end of each chapter are invaluable and suggest that we can now, with confidence, offer dental implants as a predictable treatment. Hopefully, the research methods described in this book will have a strong influence on the way we develop and evaluate other dental services.

*This book was reviewed by
Dr. Michael MacEntee,
Dept. of Restorative Dentistry,
University of British Columbia.*

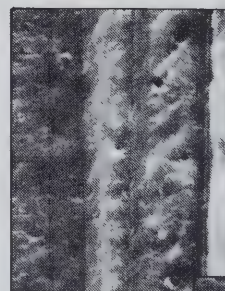
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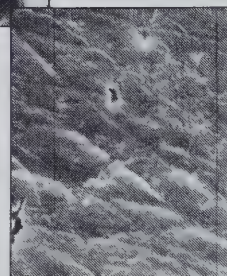
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Specialty Features

PRE-LICENSURE AND OTHER PROFESSIONAL CONCERNS

Dr. A. Schwartz*

The goal for this conference has been defined as: "To explore both conceptually and logistically, the potential of a pre-licensure clinical year to enhance undergraduate dental education and provide improved general practitioner preparation."

Why are we here? — obviously, a significant number of educators and members of the profession have expressed concerns and have reservations regarding the effectiveness of our undergraduate programs to adequately prepare our graduates for the commencement of dental practice.

I share the reservations expressed about some, but not all, new graduates. I strongly support the concept of a mandatory pre-licensure period, however, as there is no doubt that an effective program would be of considerable value to any and all new graduates, regardless of the state of their preparedness for practice after four years of dental education.

The requirement today is for a sophisticated, knowledgeable professional, one prepared to function in a group setting, able to deal with the complexities of practice management and experienced in most modern techniques of dental care delivery. The dentist of the future will be a highly competent generalist with extended clinical competence and skills, able to perform many of the procedures currently referred to specialists.¹

The amount of material which has to be covered in a four-year undergraduate program results in a very full timetable sched-

ule — much more demanding than is consistent with good learning and educational concepts. Part of the problem rests with the academic institutions which seemingly cannot, or will not, make adjustments in the undergraduate curriculum;² also, our format is for the students to go in lock-step style through their undergraduate program — all move at the same speed, or else be held up for a year. There are no part-time years in our school at Manitoba, and most programs require the student to complete the four year course within a five or possibly six year period. Paul Goldhaber, Dean, Harvard School of Dental Medicine, said "if I had to describe the dental educators dilemma in one sentence, it would simply be "most dentists are overeducated for what they do and undereducated for what they ought to be doing". The dentist of the future will require more, not less education, than is required today.³

Although the goal of predoctoral education is to produce a generalist, students are educated in up to nine different specialty departments in an approach to dentistry that becomes fragmented and departmentalized. Comprehensive care is not a reality for all students in all Canadian dental faculties. Newly graduated dentists will face the problem of providing comprehensive care immediately upon entering practice and must be more adequately prepared than most are at the present time.

* Dean, Faculty of Dentistry
University of Manitoba.

A review of curriculum problems in dental schools over the past twenty to thirty years clearly indicates the concerns which educators have had in accommodating all relevant material into the time allotted. This has become an even greater difficulty in the past few years, owing to new research developments, improvements and changes in technology, great changes in dental practice brought on by such things as third party coverage, a variety of new modes of practice, change in dental caries incidence and many other conditions.

Most institutions devoted to dental education have not been particularly sensitive to the changing conditions of the external environment, for a variety of reasons. There is minimal opportunity for undergraduate students to work with team members, i.e., dental hygienists, dental assistants, technicians, physicians and other health professionals. The preceptor model of education is very important — it is used extensively and with good results in medicine, but not in dentistry. Academics in Dentistry have private practice privileges — rarely do undergraduate students observe their teachers in practice.

Our graduates should be well prepared to work in an interdisciplinary health care team, in a dental care team, and in a group practice setting. Anyone so prepared can adapt to solo practice; the converse is not so easy. Most predoctoral programs prepare the graduate for solo practice.

The additional pre-licensure period, if it is to take place, must be of dental educa-

tion not in dental education. In other words, this period must not be entirely within an academic institution nor controlled solely by academics, although a significant input from dental schools would be an essential factor.

The pre-licensure period must not be regarded as an opportunity to revoke a dental degree, which all participants would be required to have. There should be provisions, however, for preventing a participant from proceeding into practice, but this would only occur as a result of acts of gross incompetence or some major deficit in clinical/ethical practices.

Some of the pre-licensure programs could be conducted within academic institutions, but these should be reserved primarily for those planning on an academic and/or research career, and for U.S.A. and foreign trained participants.

When I was assigned this topic, it was suggested that I relate a pre-professional period to our concerns with the American Dental Association (regarding reciprocity of educational programs). A basis for resolution of our problem with the American Dental Association could be that current graduates of ADA accredited undergraduate programs, who have successfully passed State Board examination, would be eligible to apply for admission to our pre-licensure year. Upon satisfactory completion of that year, they would be eligible for a licence in Canada, under arrangements comparable to those for current graduates of accredited Canadian programs.

There could be merit in considering the utilization of the pre-licensure period for graduates of other than Canadian or American schools, as well. Foreign trained dentists could apply for admission to positions in the program, following their successful completion of the first two parts of the NDEB examination. It would be essential that they be considered competent to undertake clinical dentistry prior to considering them for entrance to the pre-licensure period. Having

the opportunity to assess the clinical skills of these candidates over a longer term, rather than only during a stressful, limited examination time, such as we currently have, could provide some advantages for the candidates, their assessors, and their future patients.

It is possible that the licensing bodies could find the availability of a pre-licensure period to be useful in the execution of their duties. We must be aware that licensing bodies have, as a primary function, the protection of the profession and the protection of the health, safety and welfare of the general public. Since we are a self policing organization, it is imperative all of us do our utmost to see that standards are kept at as high a level as possible.⁴ All of the problems facing the profession today are not by any means the result of inadequately prepared new graduates.

There are some practitioners who are borderline and, I daresay, many peer review committees and licensing bodies might exercise their powers more effectively and adequately (in the interests of the public and of the profession), if a mechanism were in place which would permit them to require practitioners identified as being deficient by peer review, to return to a pre-licensure program in order for licence eligibility to be continued.

The first reaction of the suggestion that a pre-licensure period be made mandatory was typical of Canadian and/or the profession's reaction to most problems "we cannot do this — where will we get the money — where will we find suitable locations, etc., etc." I do not think that it will be easy to introduce such a program, but there is no doubt in my mind that these additional opportunities to prepare, more adequately, the new practitioner, whether he/she be a new graduate of a Canadian or American program, a successful NDEB candidate or a practitioner who has allowed his/her standards of practice to slip, must be

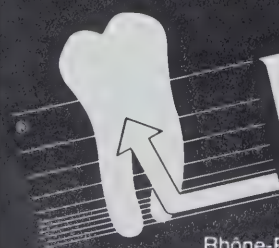
regarded as a high priority not only by the profession but also by the Federal and Provincial Governments. The Federal Government, through Health and Welfare Canada, has branches which are concerned about health standards, health protection and health promotion. Education and health legislation are regarded as Provincial responsibilities. I strongly urge representatives of the Federal and Provincial Governments to recognize and fulfill their obligations to the public by working in close harmony with the profession and academic institutions and offering assistance for the introduction of this essential step in improving oral health care in Canada. Allocation of resources and facilities to enable a pre-licensure year to become mandatory for those desirous of practising dentistry in Canada is a goal which must have the combined efforts and unqualified support from Federal, Provincial and Municipal Government, health-care institutions, universities and the profession.

It is time for us to work together, in a positive, constructive manner, to achieve the goal of establishing a mandatory pre-licensure period, which will be most beneficial to the public and to our profession.

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PLACEMENT AND LOCATION OF GRADUATES

Kenneth C. Bentley, DDS, MDCM Dean, Faculty of Dentistry, McGill University, Montreal

Presented at the Joint Prelicensure Conference — Feb. 24-25, 1986.

If a pre-licensure period were to be introduced in this country, one of the most difficult tasks to accomplish would be to find positions for each member of the graduating classes of the dental schools. Given the present size of the graduating classes, this would imply finding places for approximately 500 persons per year. However, I don't really believe that this is what we are talking about.

First of all it has to be recognized that implementation of such a program is not something that will be done overnight, and furthermore, it should not be imposed upon any student who is presently enrolled in a dental school. Therefore, as a bare minimum, if such a program were to be introduced, we should be thinking in terms of something in the order of six or seven years from now. If we are thinking even more realistically, then we are probably talking about something that will not be implemented for at least ten to fifteen years. If such is the case, enrollment in the dental schools will probably be considerably reduced from that of today, so we are not talking of 500 places, but rather a substantially smaller number than that.

In my opinion, the introduction of a pre-licensure period would also imply that the curriculum of the dental school would have to change and that the curriculum would be a very different one from today's model, where so much time is spent on clinical procedures to ensure competency.

The introduction of a pre-licensure period would imply additionally that stipends would have to be found for individuals in the system. This pre-licensure period would not be an extra year of dental school, but rather a transitional period of time whereby the graduate moves in a slower fashion from the dental school into full general practice.

In many ways such a prelicensure period would, I feel, be comparable to that of a Family Practice Residency Program, which a graduate in Medicine takes prior to going out into the practice of Family Medicine. A

certain period of time is spent in hospitals, but time is also spent in community clinics and also doing a locum with a well-qualified general practitioner. However, whenever we speak of a pre-licensure period for dentistry, many people immediately equate such a period to a hospital dental internship. Such a concept, in my opinion, is an erroneous one. I firmly believe that a hospital experience should be a necessary component of such a program, but I do not believe that a hospital experience should constitute the entire aspect of the pre-licensure period, rather, only a portion of it.

Although no thought has yet been given as to how long the total pre-licensure experience might be, perhaps for the sake of discussion we could think in terms of a period of one year. A hospital experience might then approximate a four-month period or roughly one third of the total experience. If we still think in terms of 500 graduates per year, it would be necessary to find approximately 166 hospital positions in order to accommodate the present number of graduates for a four month rotation each. However, if we think in terms of reduced numbers, the task doesn't seem to be quite so formidable. It will be necessary, however, to determine through the Council on Hospital and Institutional Services of the Canadian Dental Association and through the Canadian Hospital Association what potential exists in the system for absorbing such a number of people.

In some ways the program which currently exists in the Armed Forces, with respect to individuals who are accepted into the Forces following graduation, could in some ways be used as a pattern for what might be accomplished in the remaining seven or eight month period. This program should be reviewed and looked at from the standpoint of advantages and disadvantages. It must be recognized, however, that the Armed Forces program can only accommodate about 25 people per year.

Another area to investigate for possible placement of graduates would be community clinics or regional health centres, public schools, nursing homes, chronic care institutions or penal institutions. A study would

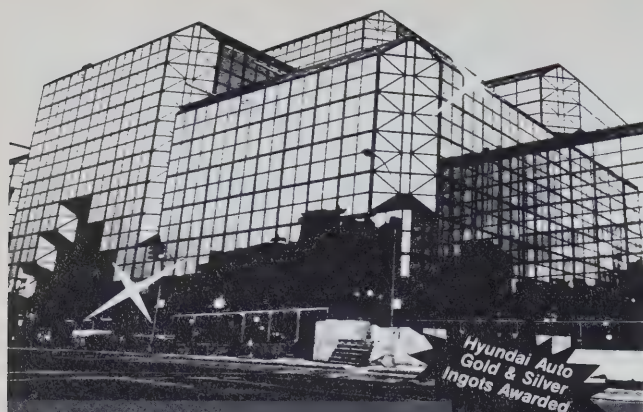
be required to determine the numbers of such institutions, their patient population and the needs of these patients.

Carefully selected private offices, where graduates could function in an associateship fashion, are other places to which the graduate could rotate for further experience. Not to be overlooked is the dental school itself, where special programs might be developed.

What the correct blend should be, or whether all candidates should have identical experiences, would have to be determined. My own thoughts are that there should be a minimum basic core for each individual plus a varied experience according to the interests of the individual. Nevertheless, irrespective of what is developed, it will be mandatory that the dental schools be involved in the overall supervision of these programs in exactly the same way as are Faculties of Medicine with respect to Family Practice Residency programs.

Graduates should register with the Universities. The schools would have to determine the educational objectives of the rotations. Some form of evaluation process would have to be developed in order to assess candidates, and individuals with appropriate qualifications would be required to supervise and teach these people, and some form of affiliation with the respective dental school will have to be developed for these preceptors. In addition, arrangements with licensing authorities will be required in order to permit these new graduates to work in some of the designated areas in view of the fact that they would not yet have received a licence to practise.

These are simply some ideas of what could be done in a pre-licensure period. Although the finding of positions represents a most difficult challenge, it should not be regarded as insurmountable. If we firmly believe it makes sense educationally, surely, with a little ingenuity, a sufficient number of places could be found which would provide an educational and clinical experience which would prepare our graduates much better for the practice of Dentistry in the years ahead.



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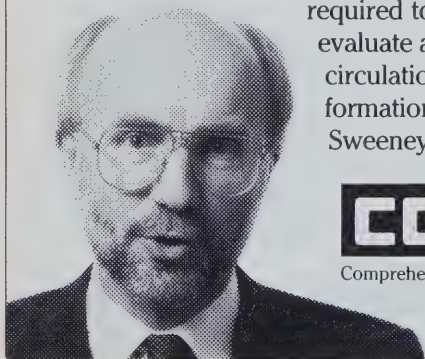
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PRELICENSURE CONFERENCE

SUMMARY

Dr. G.S. Beagrie, DSc, DDS, FDSRCS, FRCD(C), FACD, FICD

During this conference an opportunity has been given to hear the pros and cons of a prelicensure period for Dentistry. Dr. Barmes showed how the changing pattern of disease is reflected in the manpower needs, and from these he predicted the type of professional dentist the future will require. The suggestion is for an oral physician as a health team leader with the blend of the team determined by the country concerned. Changes in low, moderate and high technology will impact on the practice profile of the future and fewer dentists will be required.

Dr. Barmes reminded us of action *now* for results in 2026!

The impact of the oral health worker on general health and quality of life was also portrayed. This meeting constantly has reminded us of the need to define the character and role of the future dentist.

Speakers outlined the developments of licensure in medicine, in law and in dentistry. The medical and law models are similar, educating undergraduates in the principles of their discipline, with application of these principles after graduation in a prelicensure period. Dentistry does not have this approach and, as outlined by Dr. Dunn, it would appear as a result, to be the poorer. Another way of stating the case is that *education* in dentistry has been sacrificed in favor of *training*. Digital skills by repetition has been and is the order of things, allowing little time in the dental curriculum for scholarly university life. The statistics of library usage by medical and nursing students compared with dental students was a meaningful message. Yet, when examined, little would appear to be changing in curricula of dental schools, with emphasis still on training at the expense of education. It is interesting to note the

emphasis that Dr. Wilson placed on the undergraduate preparation of medical graduates. There is no attempt to turn out from Medical Schools embryo general practitioners. To quote Dr. Wilson, "the job of the Medical School is to teach the student how to understand *principles* of preclinical and clinical sciences." Why, one asks, should Dentistry be different?

Dr. Ianni painted a similar picture for the lawyer, but also portrayed an incredible lack of uniformity in the requirements of licensure for that profession. It was obvious that Law, although demanding a prelicensure period, has need to set up a better system whereby guidance and supervision of young lawyers can be made more uniform. I was personally pleased to hear that British Columbia is conducting a worthwhile pilot program in this regard.

The examination of dental schools and their role in curriculum development and the preparation therefore of the dental student for his professional life, was covered by Dr. Brooke* and his comments were of interest, particularly when related to the background picture of both law and medicine. Dr. Brooke took the opportunity to challenge the present curricular structure. He seemed to be supportive of the concept of prelicensure as a means of providing for a better curriculum base with electives and selectives for the student. He challenged the excessive demand of facts in present educational moulds and saw another benefit of prelicensure viz. as a step in the ladder of continuing education for the graduate. Since it is impossible for undergraduate students to have all clinical experiences covered in dental school, prelicensure was seen as a mechanism to help make the new graduate better educated and less clinically inept in certain areas.

*Dr. Brooke's paper was not published, at his own request.

Dr. Brooke could see a future course being three years for a D.D.S. and one year of prelicensure, but he worried about the logistics of who would examine, where graduates would be placed and who would pay, etc.

Dr. Ten Cate stated at the outset his opposition to an increased length of study for the D.D.S. degree. However, he would perhaps be in agreement with Dr. Brooke's outline of 3+1 years and told us of a program of this type now in place at the University of Toronto. Worried about Canada's need to develop clinical scientists Dr. Ten Cate did not feel that a prelicensure period would help in this regard. Yet if it allows more electives and selectives in the curriculum, I would have thought that this would help to release research time for potential clinical scientists. I think also that if a prelicensure year was in the form of a hospital residency then there would be an excellent opportunity to carry out clinical research. Indeed, the program outlined by Dr. Goldhaber suggested just that.

Dr. Ten Cate reminded us of the need to shift the balance of education and training within the schools and seek the backing of the profession rather than their antagonism in this change.

Miss LeSaux, currently a final year student at the University of Western Ontario,* gave vent to her feelings that having spent six years at university, escape from the confines of dental school was a feature of all students' thinking. It was therefore with some trepidation that she looked to the possible introduction of a prelicensure period as extending her supervision by a colleague beyond that of the dental school. On the other hand, she did agree that diagnostic skills will be improved by experience in

*Liliane LeSaux is now a graduate of the University of Western Ontario.

association with a colleague. She indicated too that there was need to expand certain aspects of courses into a more practical format and agreed that a prelicensure period would provide benefit in terms of practice management learning.

Student sensitivity to the concept of prelicensure is natural and therefore participants were not surprised with the initial statement that students regarded it unfavorably. There was an admission that digital skills in restorative care in a repetitive form are still given undue emphasis within dental schools and there was question as to whether this is now justifiable. Do the schools provide the necessary breadth of education to allow for adaptation to change in professional life? Is there enough forward thinking to deal with the care of the public beyond the year 2000? There is an apparent lack of diagnostic skills in new graduates, according to Liliane LeSaux, and as her argument went on, some support for prelicensure seemed to emerge, albeit covered with a desire for practice freedom. The two are not mutually exclusive.

Dr. Beck,* a new graduate and the student representative on the National Dental Examining Board of Canada, was able to focus with the hindsight of his experiences on what could be called the "equivalent" of a prelicensure period at the University of Saskatchewan. Such a scheme was fully described by Dr. Ambrose. There was no doubt that in Dr. Beck's opinion experience in that program was of great benefit to him. Dr. Beck bombarded participants with questions of content, length of prelicensure period and the need to have structure in any developed program. Questions from the

audience to both student representatives left the impression that if prelicensure was in the form of a Residency program it would be very acceptable.

Dr. Goldhaber, from his perspective, gave us the background of the Harvard experiences which ranged from a three-year program to a five-year program. He exhorted us with the need to set goals for what the dentist of the future should be and develop the educational machinery to meet the goals.

With an intake of 15 students per year and 10 people chasing each available position, Dr. Goldhaber made strong argument for Dentistry to be linked to Medicine as a Medical Specialty. A similar future was projected by David Barmes. The Harvard five-year program was novel and with a nonclinical fifth year leading into biomedical research or health care delivery and research must develop clinical scientists of the type which Dr. Ten Cate rightly sees the need for in Canada.

The generous numbers of full-time and part-time faculty of Harvard drew gasps of envy from the audience. However, nothing ventured nothing gained! Let us remember that we are looking to a future manpower smaller in number than presently being produced in Canadian dental schools and what one Faculty can do, another can follow!

Dr. Moore covered the Swedish experiment of the last two years with appropriate commentary. The Swedish model has a five and a half year program with four and a half years of undergraduate studies and one year General Practice Residency.

In essence, the preregistration year gives the fledgling dentist freedom to develop skills under guidance and to coordinate theoretical knowledge with practice appli-

cation. Also learned are methods of cooperating with specialists and the development of "study clubs" to advance further skills. During this time he/she receives 70 per cent of the wage of a dentist in practice.

Examinations at the end are administered conjointly by the Swedish dental schools and the national health authorities. The passing of oral/written/and/or oral practical examinations assesses knowledge and provides a licence to practice. In a 50 per cent national government supported Oral Health Care system this approach to prelicensure is probably more able to be administered than would be the case in Canada.

Students in the new scheme (which is only two years old) seem to be satisfied with it and goals appear to be met. Problems are apparent in the placement of students and there appears to be variance in the standards of supervision.

Dr. Ambrose described a form of prelicensure in the option program and summer externship program in Saskatoon. Both of these models give a degree of freedom for the student clinicians who also receive recompense for the work they do. He stressed the continuing education benefit to practitioners who employ the students.

The objectives of the option program to some extent were similar to the five-year Harvard experience, though not directed as far. An element of peer review was described by the report. Supervisors described gave a "no grade" acceptance of the candidate along with a recommendation for his/her degree.

Dr. Beck, a product of the school, was positive in support of this program.

Mr. Wilton, having the public's benefit at heart, warned us of the need to consult with the "stakeholders", as he calls them, i.e. governments, be they federal or provincial, professional associations, both national and provincial, as well as the public interest groups. I particularly liked the focus he placed on a recognition that the public these days is more informed and more educated on issues of health and that they are demanding input to health policy matters. In this regard, I would like to introduce a planning diagram (Figure 1) used in the Manpower Conference in Toronto which equally fits the issues of prelicensure.

Central to the process is the need for a planning and monitoring group so that the disease state of the country can first be determined. The approach to management of disease will be affected by the policy of governments, educational goals, research, personnel, etc. From an assessment of the health status of the population, all planning should proceed to provide for the needs of the public which is the profession's man-

*Dr. Beck's experiences were covered within the context of Dr. Ambrose's presentation.

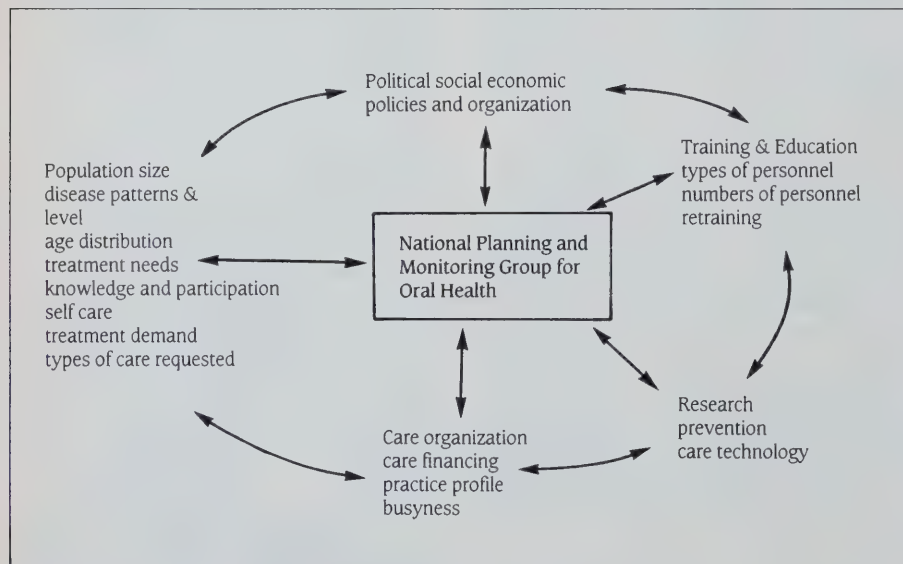


Figure 1 — National Planning and Monitoring for Oral Health

date. Note how this links to the research needs, to curricular design as well as a myriad of other factors. Leadership of national associations, of the National Dental Examining Board of Canada, the Federal and Provincial governments as well as universities is needed to provide the directions to follow — a suggestion lauded by Dr. Schwartz as well as other speakers, including Dr. Glyn during the lunchtime address.

Dr. Holmes, in a very well thought-out paper, presented us with positive views on the value of a prelicensure period. He was however, able to point out that there were obstacles to be overcome if it was to become a reality. The dual value of prelicensure was emphasized, namely that the teacher/practitioner automatically learned more from him or herself as well as the trainee, viz. continuing education component.

Referring to the American Dental Association task force, Dr. Holmes drew attention to the recommendation for an increase in general practitioner residencies to cover 50 per cent of graduates in the United States. No increase in residencies has been recorded, but in the same time period since the recommendation was made the equivalent of 15 dental schools have closed in the U.S. The ratio may therefore be better than figures indicate.

I was interested in the Delaware experience and indeed that jurisdiction demands for prelicensure practice have been made in that State since 1943. Such a demand has to be the oldest in the world for mandatory prelicensure in Dentistry.

Dr. Schwartz reminded us that future dentists would need **more** education to satisfy a need for a wider range of clinical expertise. He supported prelicensure as a mechanism to help achieve that objective. In his opinion, comprehensive patient care is not achieved in the schools and the curriculum is more theoretical than practical. He saw the prelicensure period as a mechanism to assure better control and interaction with other health workers. He claimed that the preparation in dental schools was more conducive to the development of solo practice than for the necessary interaction required in the present delivery of oral health care to the populace. He felt, too, that prelicensure could act as a useful instrument in reciprocity and for possible use in foreign student examinations as well as for use by licensing bodies for compulsory reeducation.

Dr. Bentley suggested that the introduction of a prelicensure period would be at least 10-15 years away by which time the number of graduates from dental schools in Canada would be considerably less than the present number of 500 per annum. Under such circumstances, he felt that general

practice hospital residencies would be able to accommodate a considerable percentage of new graduates and that the remainder could be placed in certain private practices, community clinics, penal institutions, nursing homes as well as the Armed Forces. He envisaged a "Permit to practice" being granted to new graduates until the full licence was given on completion of the prelicensure examination. Dr. Bentley did not disregard dental schools with general practice teaching units as a possible additional source for prelicensure training.

Dr. Dick looked at the immediate as well as the continued need to maintain competency and reminded us that students do not accept that their university education prepares them sufficiently for complete care of the public. He challenged that both educators and licensing bodies need to review present processes and that such a conference as this allows some feeling of satisfaction in meeting at least partially such a responsibility. Most new graduates entering independent practice are strained in many aspects of their care of the public and, in his opinion, such is the case with the best of students.

As Dr. Dick indicated, a recent 1985 conference of the ACFD dealt with the question "Why do failing students pass?" Think of the professional competency of such a group. Do you feel comfortable with such a question? Problem solving, attitudes, moral values, clinical judgment and accountability can only be dealt with adequately from a strong knowledge base in the preclinical, basic and clinical sciences.

Competency assessment at selected stages of an undergraduate program were suggested by Dr. Dick as an approach to acquire more reliable assurances of the clinical competency of graduates. Prelicensure was to be part of this with preceptors from general practice properly monitored and trained to make an acceptable competency measurement.

CONCLUSION

The workshops which were conducted on the last day of the Conference were supportive of the concept of a prelicensure period. There was, however, a general warning that prelicensure in itself should not be singled out for acceptance but instead that if introduced it should be part of a review for future education and training of undergraduates. A "Master Plan" which would take into account the future needs and development of Dentistry was called for. A challenge to the universities was made to redefine their role in the process of educating dentists and that perhaps the present undergraduate curriculum was attempting to cover too many parameters.

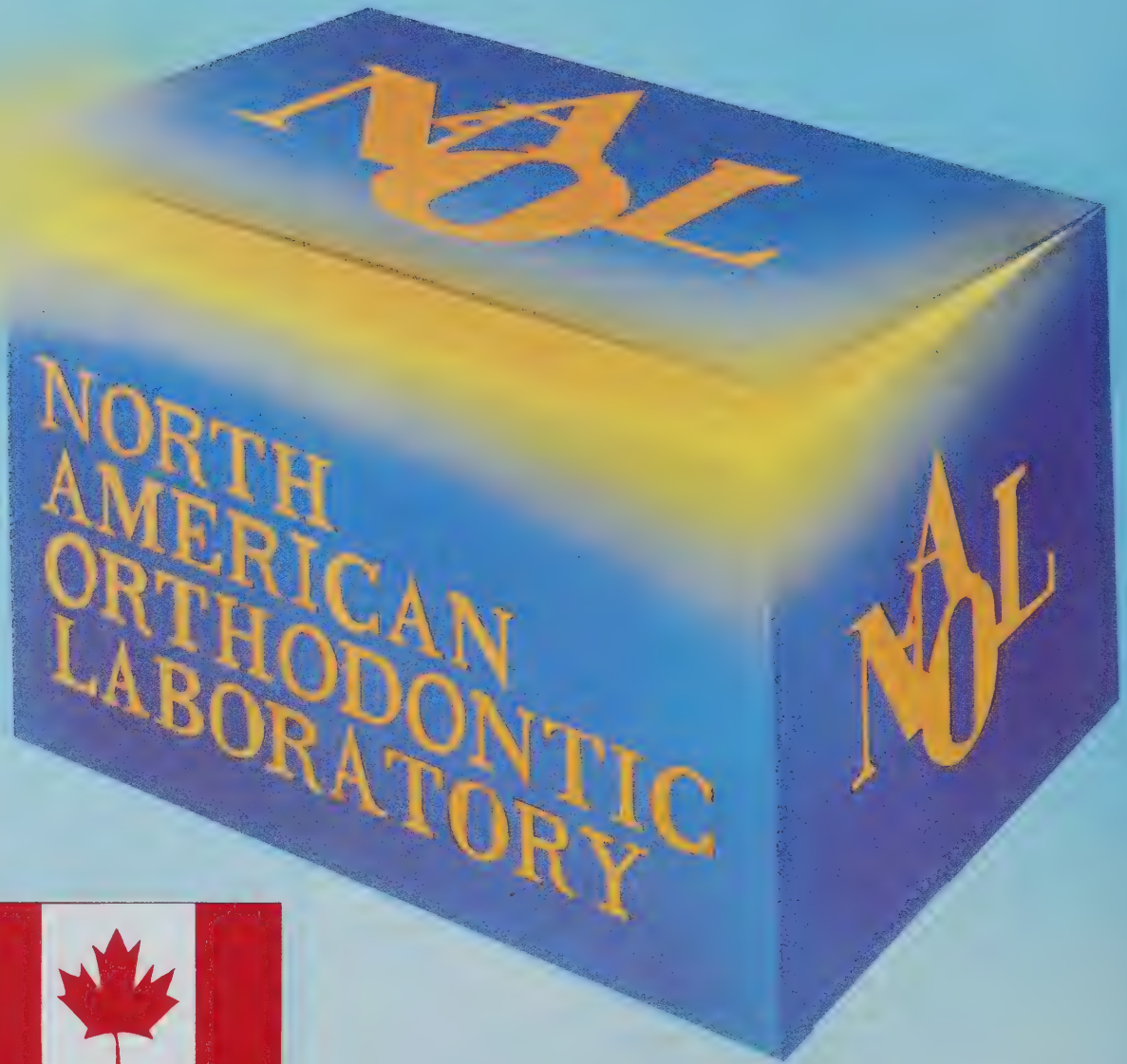


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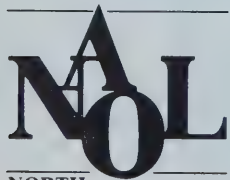
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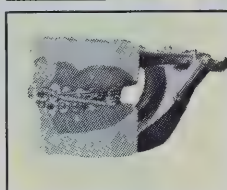
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C.D.A. PRELICENSURE CONFERENCE

February 24-25, 1986, Montreal

The following Recommendations were made at the conclusion of the Joint Conference on Prelicensure, which was presented in Montreal, February 24-25, 1986. The Conference was presented jointly by the Canadian Dental Association, the National Dental Examining Board of Canada and the Canadian Fund for Dental Education.

Bringing together educators, licensing authorities, students, researchers and dental practitioners, the Conference covered a broad range of perspectives on the concept of a prelicensure period for dentistry. The papers presented in previous issues of the Journal have suggested

many solutions from many different points of view. The Recommendations which follow are a consensus of the participants in the Conference proceedings.

The Association of Canadian Faculties of Dentistry (ACFD) is currently undertaking to form a Task Force on a Prelicensure Period in Dental Education. The Canadian Dental Association will be represented on that Task Force.

RECOMMENDATIONS

1. That the Council on Education & Accreditation and the Council on Hospital Services of the Canadian Dental Association,

the National Dental Examining Board, and the Association of Canadian Faculties of Dentistry, in association with provincial licensing authorities, explore further the matter of prelicensure as part of an effort to review the entire dental education experience.

2. That governments, national and provincial authorities be encouraged to extend practice residency programs, and also support a review and evaluation of the delivery of dental care to federal and provincial institutions.

3. That the licensing bodies investigate interprovincial and/or national implications of prelicensure.

CONFÉRENCE DE L'ADC SUR LE STAGE POST-DOCTORAL

Montréal, 24 et 25 février 1986

Les recommandations suivantes ont été formulées à la suite de la Conférence sur le stage post-doctoral tenue à Montréal, les 24 et 25 février derniers, par l'Association dentaire canadienne, le Bureau national d'examen dentaire du Canada et le Fonds canadien pour l'enseignement dentaire.

Réunissant des professeurs, des représentants des ordres professionnels, des étudiants, des chercheurs et des praticiens dentaires, la conférence portait sur l'utilité d'imposer un stage post-doctoral aux étudiants en médecine dentaire et, à cette occasion, de nombreux points de vue ont été exprimés sur la question. Des articles déjà parus dans le Journal ont déjà fait

état des solutions envisagées. Les recommandations formulées ici ont obtenu le consensus des participants.

L'Association des Facultés dentaires du Canada est en train de mettre sur pied un Groupe de travail sur le stage post-doctoral dans l'enseignement dentaire. L'Association dentaire canadienne y aura un représentant.

RECOMMANDATIONS

1. Que le Conseil d'éducation et d'agrément et le Conseil des services hospitaliers de l'Association dentaire canadienne, le Bureau national d'examen dentaire du Canada, et l'Association des Facultés de

médecine dentaire du Canada étudient davantage, de concert avec les ordres professionnels provinciaux, la question du stage post-doctoral dans le cadre d'une tentative pour revoir le programme de formation dentaire dans son entier.

2. Que les autorités et les gouvernements nationaux et provinciaux soient incités à prolonger les programmes d'internat, et qu'ils appuient une révision et une évaluation de la prestation des soins dentaires dans les institutions fédérales et provinciales.

3. Que les ordres professionnels étudient les conséquences que le stage post-doctoral aurait au niveau national ou interprovincial.

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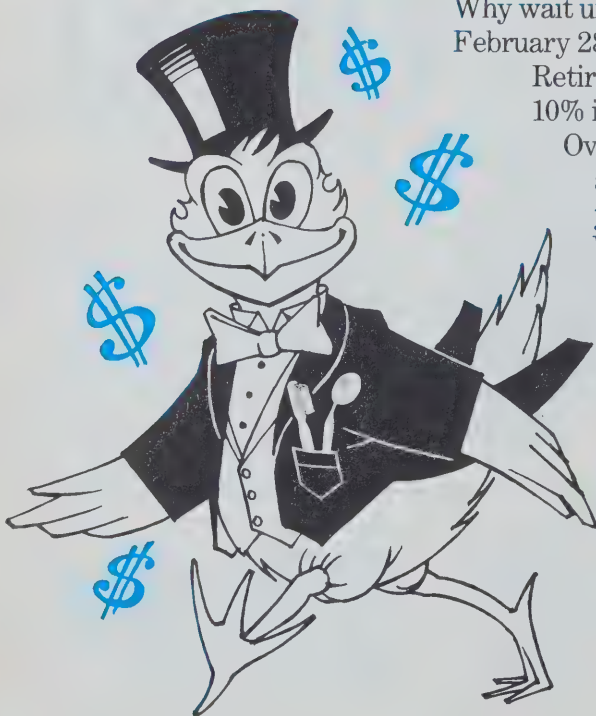
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PERIODONTAL STATUS

OF A GROUP OF CANADIAN ADULTS

J.N. Hoover, BDS, PhD
J.J. Tynan, BDS, DDPH
Saskatoon, Sask.

ABSTRACT

Periodontal disease is widespread throughout the world and is the main cause of tooth loss in adults. However, there is very little information on the prevalence and severity of this disease in Canadian adults. This study was undertaken to determine the periodontal status of a group of adults living in Saskatoon, Saskatchewan. A randomly selected sample of 160 adults (mean age 45.9 years, range 20-86 years) was examined for plaque (PI), gingivitis (GI), calculus (CI), pocket probing depths (mm) and loss of attachment (mm) on the distal, buccal, mesial and lingual surfaces of six selected teeth. The total number of surfaces examined was 3288. Probing depths of 4-5 mm were obtained in over 50 per cent of the subjects. The highest frequencies of these pockets were found interproximally. Loss of attachment ≥ 3 mm was observed in approximately 49.4 per cent of subjects in relation to at least one tooth surface. The number of subjects with loss of attachment ≥ 3 mm increased significantly with age ($P < 0.001$). The highest frequencies of plaque and gin-

givitis were demonstrated in the interproximal sites. The prevalence of periodontitis in the group of adults surveyed as assessed by pocket probing depths $\geq 4-5$ mm and loss of attachment ≥ 3 mm indicates that more attention should be directed towards better diagnosis and treatment of this disease in adults. Means of increasing periodontal awareness should also be encouraged by the dentist.

The prevalence of periodontal diseases is moderate to high in many parts of the world and results in extensive loss of teeth among adults.¹⁻³ There appears, however, to be a paucity of data in the literature concerning the periodontal status of adult Canadians,⁴⁻⁵ and present knowledge is so inadequate that it could severely inhibit the development of national dental policies. More information on the prevalence and severity of dental diseases would enable the need for treatment, prophylactic measures and effect of ongoing treatment and preventive dental health activities in population groups, as well as data on dental manpower

and other resources, to be more accurately compounded. A study was recently undertaken to determine the periodontal status of a group of adults living in the City of Saskatoon, Saskatchewan.

MATERIAL AND METHODS

The study sample consisted of 260 adults aged 19 years and over, living in Saskatoon (population 175,000). This sample was obtained from 700 adults selected at random from the City of Saskatoon voters' list for 1982. A letter of introduction, explaining the nature of the study, was mailed to all the subjects; this was followed up by a telephone call and appointments were made for those willing to participate in the study.

The periodontal examination was carried out in the Dental Clinic, University of Saskatchewan, and comprised the following assessment at four surfaces (distal, buccal, mesial, lingual) of six teeth: 16, 21, 24, 36, 41, 44. Numerous studies have demonstrated the validity of partial mouth recordings as representative of the whole mouth.⁶⁻⁷

(1) Plaque and gingivitis were recorded by the method of L  e 1967.⁸

(2) Calculus deposits were recorded as follows. 0 = no calculus, 1 = supra-gingival calculus, 2 = subgingival calculus, 3 = supra and subgingival calculus.

(3) Probing depths were measured in mm with a Williams periodontal probe (Hu-Friedy) with a tip diameter of 0.5 mm.

(4) The attachment level was assessed by probing from the cemento enamel junction (CEJ) to the base of the pocket. The measurements were rounded to the nearest mm. All examinations were done by one examiner (JNH). In addition to the clinical examination, a questionnaire pertaining to the oral hygiene habits and periodontal knowledge was completed by the subject (manuscript in preparation).

Intra Examiner Variability

Thirteen individuals were randomly selected from the study group and examined twice for calculus, probing depths and loss of attachment (LA). The time interval between the examinations was about 20 minutes. The teeth selected and the instruments used were the same as in the main study. Analysis of the re-examination data showed that the registrations were reproducible, with an agreement of 90.4 per cent, 87.6 per cent and 96.5 per cent for calculus, probing depths and LA, respectively.

TABLE I

Plaque index (PI)

(Plaque index (PI))				
Distal	Buccal	Mesial	Lingual	Total
0.72 $\pm$ 0.70	0.36 $\pm$ 0.72	0.60 $\pm$ 0.73	0.60 $\pm$ 0.70	0.57 $\pm$ 0.72
Values in table = mean $\pm$ SD				

TABLE II

Gingival index (GI)

(Gingival index (GI))				
Distal	Buccal	Mesial	Lingual	Total
1.39 $\pm$ 0.69	0.90 $\pm$ 0.66	1.42 $\pm$ 0.66	1.40 $\pm$ 0.62	1.28 $\pm$ 0.66
Values in table = mean $\pm$ SD				

TABLE III

Calculus index

(Calculus index)				
Distal	Buccal	Mesial	Lingual	Total
0.42 $\pm$ 0.85	0.29 $\pm$ 0.75	0.42 $\pm$ 0.93	0.53 $\pm$ 0.99	0.42 $\pm$ 0.89
Values in table = mean $\pm$ SD				

Results

Of the 700 subjects originally drawn from the voters' list, eight had died, 84 had moved out of the city and 348 persons did not wish to participate for a variety of reasons. Of the 260 who indicated a willingness to be involved in the study, 48 did not turn up for the examination and 52 were totally or almost edentulous. Thus, the actual sample size for the periodontal assessment was 160 (males 52.5 per cent, females 47.5 per cent). The mean age of the population studied was 45.9 years (range 20-86 years). The total number of surfaces on the selected teeth was 3288.

Plaque: The mean plaque index (PI) was 0.57 for all tooth surfaces (Table I). The highest frequency of plaque was observed on the proximal surfaces and the lowest on the buccal surfaces. More than half the number of tooth surfaces (52.9 per cent) were free of plaque.

Gingivitis: The total mean gingival index (GI) was 1.3 (Table II). The interproximal and lingual surfaces demonstrated a higher frequency (22.4 per cent and 11.0 per cent, respectively) of bleeding on probing (GI=2) than the buccal surfaces (6.4 per cent). Only 8.9 per cent of gingival sites were clinically healthy (GI=0).

Calculus: (Table III). The mean calculus index for all surfaces was 0.42 with almost 73.3 per cent of surfaces examined free of calculus. The lingual surfaces had a higher frequency of supragingival and subgingival calculus than the rest of the surfaces.

Probing depths: About half the subjects had one or more surfaces with probing depths of 4-5 mm, and nearly 11 per cent had depths of more than 5 mm (Table IV). Nearly all these pockets demonstrated bleeding upon gentle probing. There was no significant difference in the age groups in relation to frequency of probing depths $\geq$ 4 mm. The percentage of surfaces with pocket probing depth $\geq$ 4 mm is shown in Table V. The highest frequencies of probing depths $\geq$ 4 mm were found interproximally in all three age groups.

Loss of attachment (LA): Nearly 49.4 per cent of the population surveyed had LA $\geq$ 3 mm in relation to at least one tooth surface (Table IV). There was a highly significant increase with age in the number of subjects having LA $\geq$ 3 mm ($P < 0.001$). Approximately 72 per cent of those over 45 years of age had LA $\geq$ 3 mm in relation to at least one tooth surface.

DISCUSSION

One of the drawbacks in randomly selecting persons for examination from the population at large is that it is often very difficult to obtain a high response rate. In the pres-

ent study, the group surveyed was not assumed to be representative of the adult population of Saskatoon. However, an analysis of the distribution reveals that the 10 wards of the city were well represented. Nonetheless, the relatively high "no-response" rate could introduce bias into the results.

The results show that the dental plaque level of the population, as assessed by the plaque index (PI)⁸ was satisfactory. Similar findings employing the debris index were obtained in Ontario adults 35-44 years of age.⁴ Surprisingly, the mean GI of the group was high in comparison to the mean PI score. This could be due to the fact that the subjects may have brushed and flossed their teeth prior to presenting themselves for the clinical examination.

A large percentage of tooth surfaces were free of either supra- or subgingival calculus; however, about 78 per cent of subjects had calculus on at least one surface. Corresponding figures have been reported in Quebec residents 65 years of age and over.⁵

Probing depths of 4-5 mm on at least one surface were obtained in over 50 per cent of subjects. As most of these pockets bled upon probing, they should be considered pathologically altered and at a risk of developing attachment loss. Age did not seem to have a significant effect on probing depths. It is difficult to compare the results with previous studies, partly due to differences in diagnostic criteria used and to examiner variability. For example, Hansen and Johansen⁹, examining 177 citizens of Oslo aged 35 years, reported a periodontal index of 1.30 for the whole sample, and Plasschaert et al¹⁰ surveying Dutch adults reported that 53 per cent of the subjects had pockets 3-6 mm.

About 16.9 per cent of the subjects had LA between 1-2 mm and about 49.4 per cent had LA of 3 mm or more on at least one tooth. There was a significant increase with age in the number of subjects with LA $\geq$ 3 mm. However, when considering the total number of surfaces, only 8.7 per cent of the examined surfaces demonstrated LA $\geq$ 3 mm. Similar results were reported by Reddy et al,¹¹ examining 71 adults 15-100 years of age in a high fluoride area of South Africa. Even though periodontitis does cause LA, other factors such as recession and vigorous tooth-brushing may have also contributed to the high prevalence of LA on the buccal surfaces in the older age groups. Further, difficulties in locating the cemento-enamel junction, problems with bleeding, probe position, etc., could result in an under- or over-estimation of the presence and amount of LA.

The present study reveals a moderate

prevalence of periodontitis as assessed by probing depths ≥ 4 mm and LA ≥ 3 mm in the group of adults surveyed. The fairly high prevalence of pathologically deepened crevices on the proximal surfaces stresses a need for greater awareness of plaque control at proximal surfaces. If one of the selected teeth was missing it was not substituted for by using the adjacent tooth. It is therefore possible that a higher prevalence of disease could have been masked by extractions, especially in the older age groups.¹²

The results of this survey indicate that more attention should be directed towards better diagnosis and treatment of periodontitis in adults, especially at proximal sites.

We wish to thank the participants for their kind cooperation. The assistance of Professor David Singer and Miss C. Machnee is also gratefully acknowledged. Thanks are also due to Beecham Canada Inc., Weston, Ontario.

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TABLE IV

Distribution of subjects with various probing depths and loss of attachment

Age group (years)	(N)	Probing depths				Loss of attachment			
		1-3 mm		4-5 mm		> 5 mm		1-2 mm	
		(N)	%	(N)	%	(N)	%	(N)	%
19-29	(26)	(8)	30.8	(15)	57.5	(3)	11.5	(7)	26.9
30-45	(55)	(20)	36.4	(29)	52.7	(6)	10.9	(9)	16.4
≥ 45	(79)	(27)	34.2	(43)	54.4	(9)	11.4	(11)	15.2
(N) = Number of subjects		$\chi^2 = 3.69$, df = 3, $P > 0.05$				$\chi^2 = 10.83$, df = 2, $P < 0.001$			

TABLE V

Percentage of tooth surfaces with probing depths of ≥ 4 mm and LA of ≥ 3 mm

Age group (years)	(N)	Probing depths ≥ 4 mm				LA ≥ 3 mm			
		Distal	Buccal	Mesial	Lingual	Distal	Buccal	Mesial	Lingual
19-29	(26)	24.5	1.4	16.3	0.0	0.7	2.7	0.0	0.0
30-44	(55)	20.8	3.2	13.3	4.9	2.6	8.1	1.6	3.2
≥ 45	(79)	18.5	3.3	16.9	5.9	11.9	25.1	0.8	19.3
N = Number of subjects									

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2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2. Philadelphia, Saunders, 1964.13

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Specialty Features

SPECIALTY CERTIFICATION IN CANADA

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Introduction

It is reasonably certain that in 1841 when Ralph Waldo Emerson, in his *Essays on Self Reliance*, observed that 'a foolish consistency is the hobgoblin of little minds — adored by little statesmen and philosophers and divines', the Canadian dental profession was farthest from his mind. Had he been writing almost a century and a half later, however, and had he been giving some thought to this profession, he would not have been able to convict Canadian dentistry of any consistency — foolish or otherwise — concerning provincial approaches to specialty certification. Although the profession has achieved — attributable to the Dominion Dental Council (later re-named the Dental Council of Canada) and then the National Dental Examining Board of Canada — much greater inter-provincial consistency concerning the registration and licensing of general dentists, the almost eight and a half decades during which the profession has been working towards the goal of a truly recognized national standard for general dentistry has not even yet been fully achieved.

That a national standard cannot be legislated is clear from the distribution of legislative powers between the Parliament of Canada on the one hand and the Provincial Legislatures on the other. *The Constitution Act, 1867* provides for such distribution of powers. In Section 92, the Legislatures have been accorded exclusive jurisdiction to make laws which include provision for the establishment, maintenance, and management of hospitals and for property and civil rights

in the province. Section 93 bears on provincial jurisdiction for law-making power in relation to education. Section 91, that portion of the statute which apportions law-making powers to Parliament, is silent on any authority of Parliament to legislate in respect to the regulation of health care practitioners, this jurisdiction lying to provincial responsibility for property and civil rights. Therefore, we must look to provincial statutes to ascertain the source, nature, and extent of the authority which Canadian Legislatures have granted to provincial dental licensing bodies.

Statutory Authority

Each of the ten provincial licensing authorities exercises its responsibilities on the basis of delegated legislation. The Provincial Legislature has enacted a statute in broad general terms, and has created a body to which power is granted — subject usually to the final authority of a responsible Minister — to make regulations, or rules, or by-laws. Here the principle of *ultra vires* (beyond the scope of the powers) applies. If such regulations, rules, or by-laws are not consistent with the parent Act they have no legally-sustainable effect. However, when they are at one with the statutory authority they have the same force in law as the statute itself.

A review of the ten provincial "dental acts" leads to the conclusion that seven of them provide specific authority for the named licensing body to regulate specialty practice within their jurisdictions.^{1,2,3,4,5,6,7} In each statute there is a clear and unmistakable authorization for the respective licensing body to provide for the establishment of specialties and then to regulate them.

In two provinces, there is a total dependency for the regulatory jurisdiction concerning specialties on the general authority which the statutes provide. The Board in Nova Scotia makes rules and orders for regulating the registers to be kept under the Act and, as well, makes such rules, regulations, and by-laws, not inconsistent with the Act, for carrying the Act into effect as to the Board seems proper or necessary.⁸ The Dental Association of Prince Edward Island may make such by-laws as it deems necessary for the proper guidance, government, discipline, and regulation of the association, the council, the practice of dental surgery and the carrying out of the Act.⁹

The word 'specialization' occurs only once in the statute applicable to British Columbia and this in the section of the Act relating to the power of the Council to make rules respecting qualification required for acceptance of candidates for examinations. The Council, similar to that of Prince Edward Island, has general powers to make rules necessary for the proper and better guidance, government, discipline and regulation of the council, college, members of the college, and profession of dentistry.¹⁰

Based, then, on the purported authority provided by each of the 'dental acts', the respective licensing bodies have enacted regulations or rules or by-laws bearing on the recognition of specialties and have established within them criteria to be met by those members of the profession who would seek specialty status in the respective provinces.

Recognized Specialties

In the main, although there are two exceptions, the specialties provincially recognized

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are those so designated by the Canadian Dental Association — Dental Public Health, Endodontics, Oral and Maxillofacial Surgery, Oral Pathology, Oral Radiology, Orthodontics, Paediatric Dentistry, Periodontics, and Prosthodontics. Nova Scotia has not yet included Prosthodontics. Quebec has established the specialty of Oral Medicine which includes both Oral Pathology and Oral Radiology although successful completion of an approved program in either confers eligibility. Notwithstanding that it is reported P.E.I. recognizes all nine specialties, its published by-laws make reference only to five.¹¹

The recognized specialties are shown in Figure 1.

Approved Programs

All provinces require that before applicants are eligible for specialty certification they must have successfully completed educational and training programs acceptable to the licensing body. And all give recognition to the graduate or post graduate programs approved by the Canadian Dental Association. Figure 2, however, reveals that five of the 10 provinces do not confine their specialty programs' approval to those falling within the accreditation mechanism of the Canadian Dental Association.

General Practice Status

The regulations of all provinces provide that applicants, before they are eligible for licensing as specialists, must first qualify for a 'general' licence. None, however, requires that specialists be able to demonstrate they have a continuing competence in general dentistry. This matter takes on some significance in the light of Section 6 of *The Canadian Charter of Rights and Freedoms*

— the 'mobility rights' section.¹² Subsection 2 provides that every citizen of Canada and every person who has the status of permanent resident of Canada has the right to move to and take up residence in any province and therein pursue the gaining of a livelihood.

What happens, however, when — let us say between Ontario and British Columbia — a 'good standing' specialist certified in one of those provinces for many years wishes to move to the other? The practitioner must requalify for a general licence notwithstanding that he or she has, during that period, been engaged in restricted specialty practice and intends to continue in the specialty in the new province. The specialist, in his or her home province, would not be required periodically to show competence in general dentistry but that same province, in responding to an application from a specialist licensed and in good standing in the other province, would require that candidate demonstrate, through examination, what it does not require of its own. Although it could be argued that Section 1 of *The Charter* may be applicable, it is extremely doubtful if, in this instance, Section 6 could be set aside on the basis of that which is being done rests within 'such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society.'

Figure 3 provides information concerning how a specialist applicant may address the matters of eligibility for a 'general' licence.

There is, concerning eight provinces, no applicable time frame from the acquisition of the certificate of the National Dental Examining Board beyond which the original certificate is no longer valid on its own. Both Ontario and British Columbia have

established a five year period, although concerning Ontario there is a decision of the Divisional Court of the High Court of Justice which brings the legal recognition of such a stricture into serious doubt.¹³

Requisites for Specialty Certification

There are, normally, five conditions which must be met in all provinces by candidates seeking specialty licences. They must present evidence of having successfully completed an approved specialty education program; they must qualify for a 'general' licence; they must be in good standing — that is they are not in default of payment of any prescribed fees, their professional conduct is not the subject of disciplinary proceedings, their licences have not been suspended, and their licences are not subject to a non-regulatory term, condition or limitation; they must complete and submit the necessary forms; and they must pay the prescribed fees. For five of the provinces these are the conditions precedent to specialty licensing. In the five other provinces, however, there are additional prerequisites.

Alberta requires the successful completion of the Membership examination of The Royal College of Dentists of Canada (RCDC) in the specialty disciplines of orthodontics, periodontics, oral and maxillofacial surgery, oral pathology, and oral radiology. Currently, dental public health is giving consideration to implementing the same provision. British Columbia requires the Fellowship of the RCDC for oral pathology and oral radiology but mounts its own provincial examinations for the remaining seven specialties. Manitoba requires a document from the RCDC attesting that the applicant is eligible for the membership examination should he or she not be in possession of the Fellowship or not have successfully passed the Membership examination. The Board, in Newfoundland, may determine the qualifying examination at the time of

FIGURE 1

Specialties Recognized

	A L B	B C	M A N	N B	N F L D	N S	O N T	P E I	Q U E	S A S
Dental Public Health	X	X	X	X	X	X	X	X	X	X
Endodontics	X	X	X	X	X	X	X	X	X	X
Oral & Maxillofacial Surg.*	X	X	X	X	X	X	X	X	X	X
Oral Medicine	—	—	—	—	—	—	—	—	X ¹	—
Oral Pathology	X	X	X	X	X	X	X	X	—	X
Oral Radiology	X	X	X	X	X	X	X	X	—	X
Orthodontics	X	X	X	X	X	X	X	X	X	X
Paedodontics**	X	X	X	X	X	X	X	X	X	X
Periodontics	X	X	X	X	X	X	X	X	X	X
Prosthodontics	X	X	X	—	X	X	X	X	X	X

* Oral Surgery — P.E.I. and Sask., Both Alb.
 ** Paediatric Dentistry — Alb., B.C., and Ont.
 (1) Includes Oral Pathology and Oral Radiology — Successful completion of an approved program in either confers eligibility.

FIGURE 2

Approved Programs

Are 'approved' Graduate and Post Graduate Specialty programs necessarily confined to those approved by the C.D.A. Council on Education and, through reciprocity, by the Commission on Accreditation (U.S.)?

A	B	M	N	N	N	O	P	Q	S
L	C	A	B	F	S	N	E	U	A
B	N			L	T	I	E	S	
				D				K	
N	Y	N	Y	N	Y	N	Y	N	Y

application and in addition to the Membership and Fellowship qualifications of the RCDC could include American Boards and other foreign qualifications. Nova Scotia is similar to Manitoba in that if the applicant neither holds the Fellowship nor the Membership qualification of the RCDC then such applicant must present an attestation from the RCDC that he or she is examination-eligible.

An unusual requirement in New Brunswick — the legal sustainability of which is seriously questioned — is that for a specialist to engage in specialty practice, membership in a voluntary specialty organization is required. The regulation is silent on whether the society, association, or academy is provincial, national, or international.

The NDEB/RCDC Certificate of Specialty Portability

It may be appropriate, here, to pause to comment on the National Dental Examining Board of Canada/Royal College of Dentists of Canada Certificate of Specialty Portability. In 1973, the *Act respecting the National Dental Examining Board of Canada* was amended resulting, *inter alia*, in the creation of new sections 6 and 7. Added to the section 6 purposes of the NDEB was the establishment of qualifying conditions for national standard certificates of qualification for dental specialists subject to the approval of The Royal College of Dentists of Canada.

The powers of the NDEB were augmented in section 7 by making provision for the establishment, subject to the approval of the RCDC, of qualifications for dental specialists to ensure that in each case the qualifications may be recognized by the appropriate licensing bodies in all provinces of Canada. The section further provided — again subject to the approval of the RCDC — for the establishment of conditions under which a dental specialist may obtain and hold a certificate of qualification; for prescribing compulsory examinations; for establishing and maintaining a body of examiners all of whom would be appointed by the RCDC to hold examinations; and for making recommendations concerning the granting of certificates of qualification of properly trained dental specialists and issuing certificates of qualification.

There appears to be nothing exclusive in section 6. Although one of the statutory purposes of the NDEB is "to establish qualifying conditions for national standard certificates of qualification for dental specialists subject to the approval of The Royal College of Dentists of Canada" that does not legally preclude any province from setting such "qualifying conditions" for

FIGURE 3

General Practice Status

	A	B	M	N	N	N	O	P	Q	S
Excluding any special arrangements applicable to full-time academic appointments:	L	C	A	B	F	S	N	E	U	A
	B		N		L		T	I	E	S
					D					K
1. Would a hitherto unlicensed dentist seeking to be licensed as a specialist be required, first, to qualify for a 'General' Licence?	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
2. Is an N.D.E.B. (General) Certificate (or its equivalent) required for entry by a specialty candidate?	Y	Y	N	Y	Y	Y	Y	Y	N	Y
3. If the Specialty Candidate has the N.D.E.B. Certificate (General), is an additional provincial examination required?	N	N ¹	N	N	N	N	N	N	N ²	N
4. If the Specialty Candidate does not possess the N.D.E.B. Certificate, may he/she successfully complete a provincial licensing examination re general practice?	N	N	N	N	N ³	N	N	N	N	N

(1) Except if N.D.E.B. Certificate is older than five years, then 3-day clinical examination required.
 (2) Provided the Certificate results from successfully completing all portions of the actual examinations.
 (3) Reg. 3.1h does give authority to the Board to recognize successful completion of such other examination as the Board may determine.

FIGURE 4

Requisites for Specialty Certification

Given that applicants for Specialty Certification must:

- Present evidence of having successfully completed an approved Specialty Education Program,
 - Qualify for a 'General' Licence,
 - Be in "Good Standing"
 - Complete and submit the necessary forms, and
 - Pay all the required fees,
- are there any additional requisites to be met by the candidate?

	A	B	M	N	N	N	O	P	Q	S
	L	C	A	B	F	S	N	E	U	A
	B		N		L		T	I	E	S
					D					K
1. Fellowship Exam. RCDC*	*	Y ¹	Y ²	N	* ³	N	N	N	N	N
2. Membership Exam. RCDC	Y ⁴	N	Y ²	N	Y ⁵	N ⁶	N	N	N	N
3. Provincial Spec'y. Exam.	N	Y ⁷	N	N	N	N	N	N	N	N
4. American Boards	N	N	N	N	Y ⁵	N	N	N	N	N
5. NDEB/RCDC Cert. of Spec'y Portability	N ⁸	N	N	N	N	N	N	N	N	N

- For Oral Pathology and Oral Radiology.
- Or eligibility for RCDC Membership examination.
- The holder of a fellowship in the RCDC is eligible for specialty status without reference to any other qualification.
- For Orthodontics, Periodontics, Oral and Maxillofacial Surgery, Oral Pathology and Oral Radiology (Dental Public Health considering).
- Board may determine qualifying examination at time of application.
- Must be Membership Examination — eligible of the RCDC.
- All except Oral Pathology and Oral Radiology.
- Acceptable as evidence of having passed Membership Examinations of the RCDC.

* Where membership exam is a requisite, fellowship automatically is included as a qualification

specialty practice within its jurisdiction as the "dental act" provides. It is equally clear that the NDEB can establish nothing in the absence of "the approval of The Royal College of Dentists of Canada". There is also nothing in the Act which precludes the RCDC from setting its own examinations and, consequent to candidates successfully completing them, to issue evidence in the form of some appropriate document which a provincial dental licensing authority, possessing competent legislation, may accept as evidence of the applicants having met the academic/clinical criteria for specialty certification.

Given that the regulation of health care practitioners rests within provincial jurisdiction, there is nothing within the NDEB

Act which, in any fashion, affects that fact. It is clear from section 7 that the recognition to be accorded by 'the appropriate licensing bodies in all provinces of Canada' is volitional. The word 'may' cannot be equated with 'shall'. In fact, if a legal layman has any right to an opinion more appropriately resting with another profession, had the word 'shall' been employed it would, had a legal attack been made on it, have been certain to have been adjudged unconstitutional.

The NDEB/RCDC portability certificate is essentially redundant. It attests to circumstances for which supportable evidence already clearly exists. The RCDC had previously examined the candidate and issued results of those examinations. It is an otiose act to require, on the payment of a fee, the acquisition of another document essentially

doing nothing more than confirming the first. The NDEB/RCDC certificate of portability is not, as shown in **Figure 4**, a requirement in any province. The Executive Committee of the RCDC, in the latter part of 1985, withdrew the College from its participating involvement with the certificate.

Figure 4 is a tabular presentation, by provinces, of the requisites for specialty certification.

Specialty Practice Restricted

Most Canadian dental regulatory bodies, as can be ascertained from **Figure 5**, do not require that specialists restrict their practices to their respective areas of specialization. Manitoba, Nova Scotia, and Prince Edward Island are the exceptions. The wording in New Brunswick is, however, unusual. It is stipulated that specialists can practise the specialty or specialties for which they are registered but no other specialties.

Restrictions on Licences

Some provincial dental licensing authorities are permitted by their statutes to place restrictions on licences apart from such sanctions as may arise as a result of disciplinary procedures. Such authority may be useful if, for sound and valid reasons, it is more appropriate to issue a restricted licence to an applicant for specialty status rather than a 'general' licence. As can be seen from **Figure 6**, Alberta, New Brunswick, and Ontario have that flexibility.

Fees

There is considerable variation in application fees. In all provinces, except for Ontario and Quebec, the annual 'licence' fee includes membership in the provincial dental association and the Canadian Dental Association. The annual membership fee of The Royal College of Dental Surgeons of Ontario uniquely includes a mandatory liability insurance premium. British Columbia and Ontario both have specialty examination fees but Ontario's is inapplicable because that province does not offer provincial licensing examinations. In all provinces, save Quebec, there is an initial registration fee and, in addition again to Quebec, New Brunswick has no specialty registration fee. Only three provinces require of specialists an additional annual fee — Alberta, British Columbia, and Newfoundland.

Figure 7 provides a listing of provincial fees for 1986.

Conclusion

It is obvious that specialty certification in Canada has a long road yet to travel before a desirable destination is reached. One giant leap, however, rests within the competence of all. In 1962, the Board of Governors of the Canadian Dental Association unani-

FIGURE 5

Restriction to Specialty

Is a Specialist required by law to restrict the practice to the Specialty?*

A	B	M	N	N	N	O	P	Q	S
L	C	A	B	F	S	N	E	U	A
B		N		L		T	I	E	S
				D					K
N	N	Y	N ¹	N	Y	N	Y	N	N

* In all provinces, certification is possible in as many specialties in which the applicant is duly qualified.

(1) Can practise specialty or specialties for which he/she is registered but no other specialties.

FIGURE 6

Restricted Licences

Apart from actions consequent to disciplinary procedures, does the "Dental Act" permit the placing of a restriction on the licence?

A	B	M	N	N	N	O	P	Q	S
L	C	A	B	F	S	N	E	U	A
B		N		L		T	I	E	S
				D					K
Y	N	N	Y	N ¹	N	Y	N	N	N

(1) Reg. 4(2) provides for a Locality Restriction as a condition of the Provisional Licence.

FIGURE 7

Fees - 1986

	A	B	M	N	N	N	O	P	Q	S
	L	C	A	B	F	S	N	E	U	A
	B		N		L		T	I	E	S
					D					K
	\$	\$	\$	\$	\$	\$	\$	\$	\$	\$
Specialty Examination Fee	—	1050	—	—	—	—	1500 ¹	—	—	—
Registration Fee										
All Dentists	100 ²	200	100	100	100	100	100	100	0	100
Specialty Registration	25	105	25	—	100	25	50	—	50	25
Annual "General"										
Membership/Licence	810	750	810	900	1000	875	550	725	520	750
Annual Additional Specialty										
Membership/Licence	25	65	—	—	100	—	—	—	—	—
C.D.A. Membership*										
Fee Included?	Y	Y	Y	Y	Y	Y	N ³	Y	N ⁴	Y
Liability Insurance										
Premium Included?	N	N	N	N	N	N	Y ⁵	N	N	N

* C.D.A. Membership Fee - \$235.00.

(1) Fee exists in Regulations but no examination is available.

(2) \$50.00 for 'new' Graduates.

(3) Membership fee, Ontario Dental Association - Active \$305.00; Salaried \$195.00; Armed Forces \$100.00

(4) Membership fee, l'Association des chirurgiens dentistes du Québec - \$500.00.

(5) Liability insurance premium - \$265.00.

mously endorsed and financially supported the creation and incorporation of The Royal College of Dentists of Canada for the purpose of 'setting up qualifications for dental specialists and for the examination of those who claim to possess those qualifications.'¹⁴ Fully recognizing the turbulent early years of the College, any unbiased observer must, to-day, acknowledge the stature and competence of this national body. Thus, the condition precedent to certification as a specialist in any province should, in the future, be the possession by the applicant of the appropriate credential of The Royal College of Dentists of Canada. "Anything less is a compromise which an enlightened profession should not be willing to accept."¹⁵

Acknowledgments

The author is deeply grateful to each of the Provincial Registrars for reviewing and, where necessary, correcting the exhibits. The information provided therein is confirmed to be accurate on 31 December 1985.

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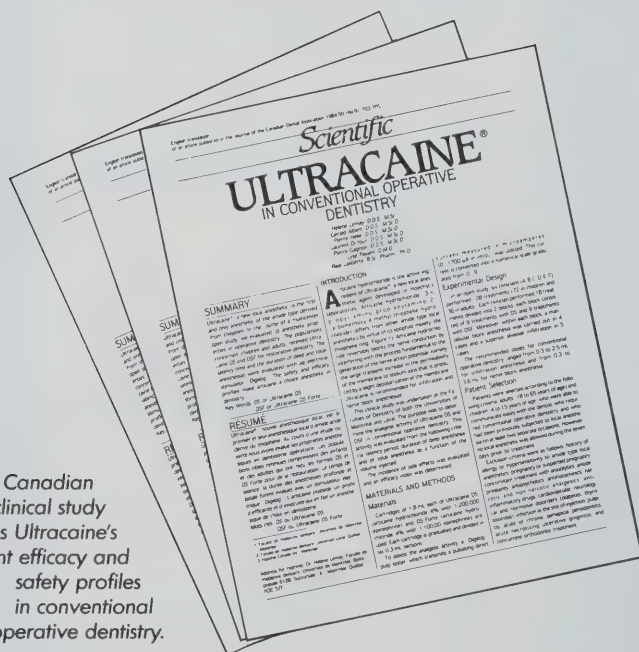
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REPAIR OF A PERIODONTAL DEFECT

CAUSED BY THE IMPROPER USE OF THE ELECTROSURGICAL INSTRUMENT

Allen Shapiro, DDS, MSc
Montreal

ABSTRACT

A clinical case is presented demonstrating the consequences of the improper usage of the electrosurgical instrument, and the periodontal repair that is attainable using accepted periodontal techniques.

RÉSUMÉ

Un cas clinique est présenté pour démontrer les conséquences de l'utilisation incorrecte de l'instrument électrochirurgical, et la réparation périodentaire que l'on peut atteindre.

The beneficial use of the electrosurgical instrument has been well documented in the dental literature.^{1,2} However, when improperly used, this current can cause severe damage to the periodontium.^{3,4} The purpose of this article is to describe, using a specific case report, the consequences of the improper use of the fully rectified current and to demonstrate the repair potential that is possible using a modification of a standard periodontal procedure. To be specific, the use of a free gingival autograft to cover a deep wide recession⁵ on the palatal aspect of a maxillary lateral incisor.

Case Report

The patient, an 11-year-old white female, presented to her family dentist with instructions from her orthodontist to surgically expose the maxillary left impacted cuspid (Fig. 1). The tooth would then be orthodontically brought into proper alignment. Without the use of proper radiographic tech-

niques to properly locate the impacted cuspid in a bucco-palatal orientation, the dentist assumed the tooth was palatally positioned. After the removal of much palatal bone, the tooth was finally located on the buccal aspect of the alveolar ridge. After an initial healing period, the orthodontist found that the palatal mucosa was now covering over the previously exposed cuspid and asked the dentist to remove the excess soft tissue. The dentist complied using an electrosurgical instrument. The final healing after this procedure can be seen in Figure 2. The soft and hard tissues on the palatal aspect of the maxillary left lateral incisor have sloughed, leaving a deep, wide recession of the root. The patient was then referred for repair of this periodontal defect.

The use of free gingival autografts to achieve root coverage using the technique described by Miller,⁶ has become an almost routine predictable practice. The technique consists of thorough root planing, root conditioning using citric acid pH 1 for five minutes, and a graft thickness of approximately 2 mm (Figs. 3 and 4). The only modification to this technique which was deemed necessary was the protection of the grafted area during the healing period. It was felt that a periodontal pack such as Coe Pak would not be retentive in this case, due to the long unsupported mass of pack that



Fig. 1. Radiographic view of the impacted cuspid 23.

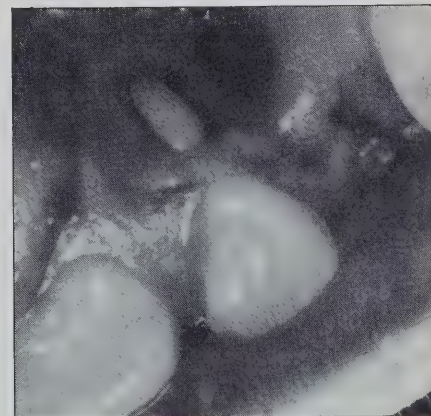


Fig. 2. Preoperative view as the patient presented for periodontal correction. Note the area where an attempt was made to expose the impacted 23 and the root fenestration of 22. The bridge of soft tissue at the cervix of the crown of 22 is totally on enamel and is very thin.

would be needed to cover the graft, as well as the short clinical crowns which would offer retention. If the pack fell off during the initial healing period, it was believed that because of the position of the graft, the mechanical irritation by food or the tongue would cause a displacement of the graft and necrosis. It was therefore decided to use a Hawley appliance, not only to protect the graft during the initial healing period of 20 days, but also to ensure an intimate contact of the graft against the conditioned root surface (Fig. 5). The appliance was worn 24 hours a day, with removal only for cleaning. The grafted tissue remained in place and good healing followed (Figs. 6, 7 and 8).

CONCLUSIONS

A clinical case has been presented to demonstrate the damage that can be produced by improper use of the electro-surgical instrument, and the repair that is possible using accepted periodontal techniques.

Extrapolating from the work of Albair and coworkers,⁷ the attachment of the gingival autograft to the conditioned root surface was probably a mixture of connective tissue and junctional epithelium. With good oral hygiene on the part of the patient, it is felt that the orthodontic treatment can now continue and that the attachment of the graft to the root will withstand the test of time.

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Reprint requests to Dr. Shapiro.

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Fig. 3. Preparation of the recipient bed after thorough root planing and root conditioning with citric acid pH 1.



Fig. 5. View of the Hawley appliance in place.



Fig. 7. Twenty-day postoperative view, when the Hawley appliance was finally removed; 100 per cent of grafted tissue is still present.



Fig. 4. Thick graft (2 mm) taken from the palatal aspect of the 26 and 65 is sutured in place at the C.E.J. of the 22. An attempt was made to preserve the bridge of tissue described in Fig. 2, but after removal of the epithelium this tissue was so thin, it was removed.

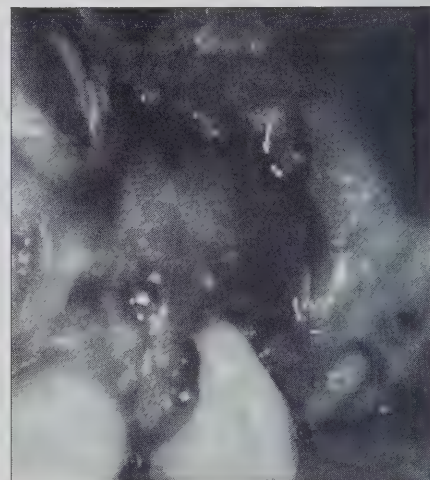


Fig. 6. Ten-day postoperative view. At this stage of healing, it can be seen that 100 per cent of the grafted tissue is present.



Fig. 8. O crevice depth at the three month healing period. The blanching of the tissue indicates a strong attachment to the root.

REEVALUATION FOLLOWING INITIAL (NON-SURGICAL) PERIODONTAL THERAPY ITS SIGNIFICANCE

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The most important objective of initial periodontal therapy is to eliminate and control the active disease processes and to arrest the progression of disease by the removal of microbial plaque and local irritants. Therefore, the basic format of cause-related therapy or initial preparation includes: (1) education and motivation of the patient for plaque control; (2) meticulous scaling and root planing; (3) removal of additional plaque retention factors such as overhanging margins of restorations, ill fitting crowns, etc; (4) control of contributing occlusal factors; (5) re-evaluation of tissue response and the patient's oral hygiene standard. In addition to the above, Goldman and Cohen¹ have advocated that caries control, endodontic problems, extraction of hopeless teeth, and orthodontic tooth movement be performed as part of the initial phase of periodontal therapy.

Information has accumulated about the pathogenesis of periodontal disease and the longitudinal tissue response to treatment. It has become clear that the initial removal of microbial deposits on the root surface and plaque control are critical determinants of the response to therapy.

The purpose of this article is to briefly review the literature on the effects of the initial phase of non-surgical therapy, and to discuss the important factors considered during the re-evaluation of periodontal tissues after initial preparation.

Literature Review

Longitudinal clinical studies, three to five years in length, which evaluated the role of careful root planing combined with oral hygiene measures have demonstrated the improved health of the subjects.²⁻⁴ Other



studies have also shown that scaling and root planing, in conjunction with oral hygiene, could maintain attachment levels over a three-year period.⁵⁻⁷ Philstrom et al.⁸ reported similar long-term results in 17 of their patients. They demonstrated that although the pocket reduction was less with scaling and root planing as compared to surgical flap procedures, more clinical attachment was obtained in pocket depths of 4 to 6 mm with non-surgical therapy alone. Furthermore, the attachment gained was maintained over a four-year period.

Recently, Lindhe et al.^{9,10} presented data from longitudinal studies in patients with advanced periodontal disease. These patients were subjected to both surgical and non-surgical therapy, utilizing a split mouth design. Lindhe and his colleagues concluded that sites with initial pocket depths exceeding 3 mm respond equally well to non-surgical and surgical modes of treatment.

Clinical trials of short duration indicate that the resolution of gingival inflammation is the result of three factors: 1) scaling and root planing, 2) oral hygiene measures, and 3) the length of time allowed before assessment of gingival response.⁶ In this study, a 1-2 mm reduction in pocket depths appeared to be due to the resolution of gingival inflammation plus gain in the clinical attachment levels. Similar favourable results have been reported by other investigators.^{11,12} In a recent series of clinical studies, Badersten et al.^{13,14} observed a considerable pocket reduction following root instrumentation under local anesthesia, in conjunction with good oral hygiene measures. Furthermore, these favourable results were maintained over a period of two years. These studies support the crucial role of the non-surgical phase of periodontal therapy.

In other recent clinical trials, Proye et al.¹⁵ demonstrated that substantial pocket depth reduction takes place in periodontal pockets within four weeks of a single episode of root planing when combined with oral hygiene measures to maintain low levels of supragingival plaque. Although reduction in pocket depths after root planing and oral hygiene instructions has been reported by many investigators,^{5-14,16} most of these studies employed several episodes of root instrumentation, in contrast to the single episode of root planing used by Proye et al. Furthermore, Caton et al.¹⁷ substantiated that the favourable clinical results obtained by a single episode of root planing can be maintained for an additional three-month period.

Histologic studies have also shown soft tissue response to subgingival root planing alone or in combination with oral hygiene instructions and gingival curettage.^{11,18-22}



Fig. 1. Pre-treatment of the maxillary and mandibular anterior regions. Note the bulbous and edematous gingiva.

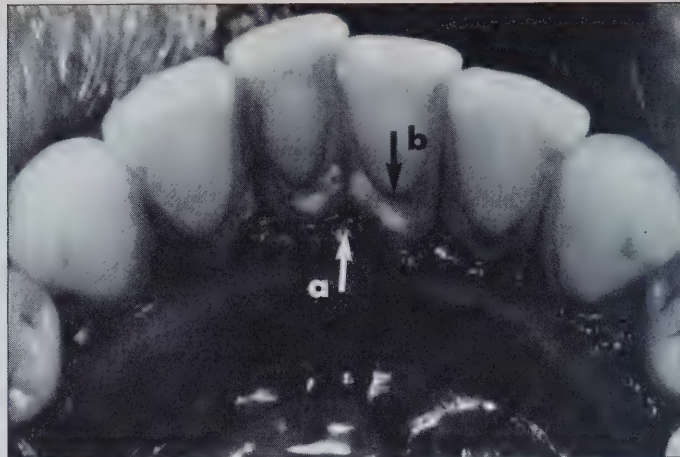


Fig. 2. Pre-treatment of the mandibular lingual region. Note the ulcerated papillary gingivae (arrow a). Supragingival calculus exists (arrow b).

Stahl et al.²⁰ reported that inflammation was reduced significantly in specimens taken 14 days post-debridement. However, the inflammatory infiltrate returned to pre-treatment levels 24 to 56 days after root instrumentation. Investigators in these studies reported that oral hygiene instructions were not given to these subjects.¹⁸⁻²⁰ In a study by Tagge et al.,¹¹ patients were given oral hygiene instruction in conjunction with meticulous root planing. These patients were re-evaluated clinically and histologically at eight to nine weeks post-treatment and the gingival inflammation was significantly reduced from pre-treatment levels.

Epidemiological studies and clinical experiments have shown that microbial plaque is the primary cause of periodontal disease.^{2,23} Lindhe et al.²⁴⁻²⁵ have reported that if plaque is allowed to stagnate for years, or even months, a periodontitis will develop from the original gingivitis. The principle of mechanical debridement, there-

fore, stems from the non-specific plaque hypothesis.²³

Scaling and root planing have been shown to affect the subgingival microbiota. Handelman and Hess²⁶ have reported that the distribution of tooth surface microbial flora after prophylaxis tends to return to pre-prophylaxis levels in 30 to 60 days. Listgarten et al.²⁷ monitored subgingival microflora following mechanical debridement or antibiotic therapy and found microbial alterations 25 weeks post-debridement. Mousques et al.²⁸ and Slots et al.²⁹ have reported that the composition of the subgingival microbial flora was completely altered by even one episode of scaling and root planing procedure. Recolonization of the subgingival microflora may take from 42 days to three to four months. Studies have also shown that subgingival debridement in patients with good oral hygiene levels produced marked reduction of spirochetes and motile rods.^{27,30} A more recent report by Armitage et al.³¹ indicates

a significant increase in the relative percentage of spirochetes in bleeding pockets deeper than 3 mm. The most recent study, by Magnusson et al.,³² demonstrates that in the presence of supragingival plaque, a subgingival microbiota containing large numbers of spirochetes and motile rods is soon re-established after scaling and root planing. This study is consistent with the findings of Mousques et al.²⁸

Based on the studies cited, supragingival plaque formation appears to be an important determinant for the re-establishment of a mature subgingival microbiota containing large numbers of spirochetes.^{28,32}

Re-evaluation

The re-evaluation provides an opportunity to assess the effectiveness of subgingival plaque and calculus removal and the patient's home care. Furthermore, it is determined by evaluating the resolution of gingival inflammation and reduction of probing depth, alteration in the clinical



Fig. 3. Seven months post-initial therapy. Note the soft tissue resolution.



Fig. 4. Post-initial preparation of the mandibular lingual region. Note well adapted gingivae with a physiologic contour.

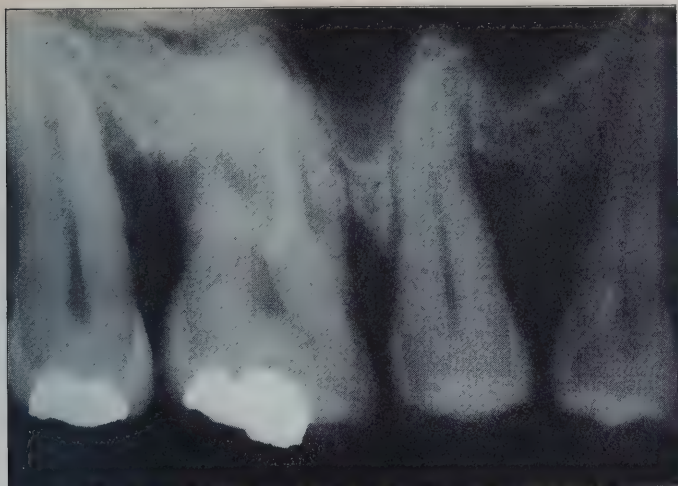


Fig. 5. Radiograph of the maxillary right posterior region depicting vertical bone loss.

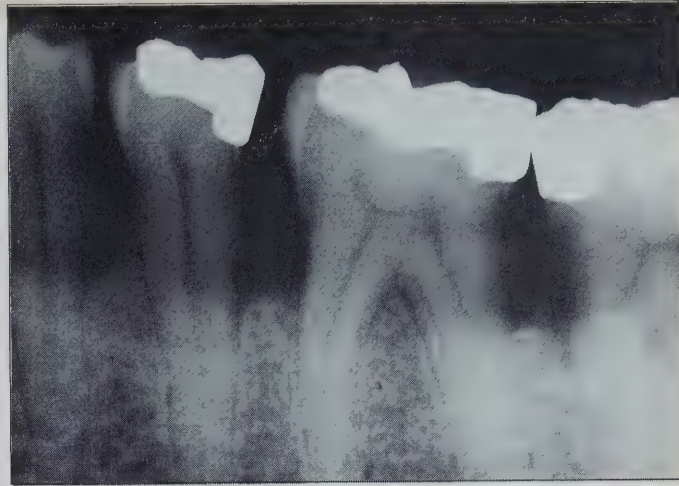


Fig. 6. Radiograph of the mandibular left posterior region displaying horizontal bone loss and overhanging amalgam restorations.

attachment level, and the improvement of tooth mobility. Based on information obtained during re-evaluation, patients may be classified into one of four categories:

I. Re-evaluation may reveal a patient with proper oral hygiene standards, no gingival bleeding on gentle probing, tight adaptation of the gingival wall to the tooth, and with suitable pocket reduction and improved clinical attachment level. In such patients, no further periodontal therapy may be indicated. The patient is placed on a regular maintenance program and needed restorative therapy is carried out.

II. Despite repeated oral hygiene instructions during the course of initial therapy, the patient shows an inadequate level of home care. This type of patient lacks motivation and/or the ability to do a better job. If deep pockets remain and bleed upon probing, the patient should not be considered for a surgical procedure. Therefore, such patients may be placed on a holding program consisting of reinforcement of dental home care

instructions, frequent debridement and re-evaluation.

III. It may also be observed that a patient is not consistently cleaning, but cleaned well on the day of re-evaluation. This type of patient could be misleading and unreliable. Invariably, the gingival tissue will bleed on mild probing in spite of shallow probing depths. Such patients require additional motivation for good home dental care. Bleeding areas should be debrided and re-evaluation should be done after a couple of weeks.

IV. The patient who shows adequate plaque control but has deep pockets that bleed on gentle probing should be considered for periodontal surgery in order to gain access for more thorough root instrumentation. It has been reported that in deeper pockets, the proper blade adaptation and angulation of the instrument is difficult to achieve due to tooth contour and root morphology. Furthermore, a surgical debridement may be required when access to deep or tortuous

defects is necessary. Therefore, in deeper pockets, the surgical intervention may be a logical choice in light of these findings.³³⁻³⁶

CLINICAL EXAMPLES

Case Report 1

Generalized moderate to localized advanced periodontitis with 6-8 mm pockets with horizontal bone loss: American Academy of Periodontology (AAC). Case type III.

This patient was a 51-year-old female whose chief complaints were gingival bleeding and bad breath. Her medical history and review of systems revealed no contraindications to periodontal therapy. Gingival tissue was reddish-blue in colour, bulbous and edematous and easily retractable with a probe. The ulcerated papillary gingiva was symptomatic to ANUG (Figs. 1 and 2).

A longer initial preparation phase was needed for this patient in order to remove



Fig. 7. Pre-treatment of the maxillary right posterior region. Note the position and contour of the marginal and interdental papilla.



Fig. 8. Pre-treatment of the mandibular left posterior region. Note the overhanging amalgam restorations (arrow a) and the position of the gingiva (arrow b).



Fig. 9. Pre-treatment of the maxillary and mandibular anterior region. Note the inflamed gingival tissue (arrow).



Fig. 10. Post-initial therapy at six weeks. Good tissue resolution occurred. However, erythema and bleeding upon probing were observed due to the patient's poor plaque control (arrow).

all the supragingival and subgingival plaque and calculus deposits. This phase required seven months of non-surgical therapy. There were a variety of reasons for the long span of non-surgical therapy, including replacement of overhangs, an ill-fitting crown, treatment of carious lesions, and extraction of partially and fully impacted third molars. The soft tissue resolution can be seen clearly in a comparison of pre-initial preparation (Figs. 1 and 2) with the post-initial therapy (Figs. 3 and 4). The patient had excellent plaque control and was highly motivated and the probing depths were significantly reduced. There was no bleeding or suppuration on probing. The gingivae now appeared firm, pink and stippled, with shallow probing depth and well adapted, with a physiologic contour.

Case Report 2

Advanced periodontitis with 8-9 mm pockets, horizontal and vertical bone loss with mobility pattern of 2-3 degrees: AAP. Case type IV.

The patient was a 50-year-old female whose medical history was non-contributory. Several teeth had guarded to hopeless prognosis. Severe bone loss was easily recognized in the radiographs of the maxillary right and mandibular left sextants (Figs. 5 and 6). Pre-treatment appearance of maxillary right and mandibular left view shows overhanging restorations, inflamed and rolled margins of the gingivae (Figs. 7 and 8). Eight months were devoted to Phase I therapy. This resulted in 3-4 mm of soft tissue shrinkage, mobility was reduced, the patient's oral hygiene was excellent but residual 5-6 mm pocket depths were left between the bicuspid and molars of the maxillary right and mandibular left sextants. Despite excellent home care, the patient could not remove plaque from the deeper pockets, and bleeding per-

sisted. Surgical intervention was indicated in order to gain access for root instrumentation.³³⁻³⁶

Case Report 3

Generalized mild to localized moderate periodontitis. With 5-6 mm pockets and horizontal bone loss: AAP. Case type II.

A 47-year-old female sought periodontal treatment because of gingival bleeding. Her medical history was non-contributory. The gingival tissue was red in colour with isolated edematous consistency (Fig. 9). The patient was re-evaluated six weeks after initial therapy. Pocket depths were reduced to 3-4 mm. An isolated area bled upon probing in spite of shallow crevice depth (Fig. 10). The patient's oral hygiene was poor and flossing was not being used on a daily basis. Therefore, this patient was debrided again and motivated to practice better oral hygiene. She has been on a periodic periodontal maintenance program.

Case Report 4

Advanced periodontitis with 7-8 mm pockets with horizontal and vertical bone loss: AAP case type IV.

The patient was a 31-year-old female whose medical history was non-contributory. In general, the tissues were boggy, edematous and loose in consistency. Generalized interdental hemorrhage appeared upon mild probing and suppuration between the maxillary anteriors was noted (Fig. 11). Sixteen months was devoted to phase I therapy. Fig. 12 shows the patient at post-initial therapy with a gross shrinkage of 4 mm. The patient's plaque control was excellent. Although the probing depth was 4-5 mm on the maxillary anteriors, there was no bleeding upon probing. No surgical intervention was considered on the maxillary anteriors for esthetic reasons. However, this patient has been on a

periodontal maintenance program for 2-3 months.

Discussion

All deep pockets should first be subjected to meticulous non-surgical periodontal therapy before surgical intervention is considered.^{6,13} The intervals at which scaling and root planing have to be performed in order to successfully alter the pathogenic subgingival flora, and to maintain a flora consistent with periodontal health have not yet been firmly established.²⁷⁻²⁹ It is the responsibility of the dentist to perform initial therapy and to achieve soft tissue healing. There is increasing evidence that non-surgical approaches in general will be successful in effectively treating deep periodontal pockets and maintaining clinical attachment levels.³⁷⁻⁴⁰ However, the limitation of non-surgical therapy lies within the inability of the operator to gain access to all root surfaces in deep pockets and furcations.^{33,34} The effectiveness of this therapy on a site-by-site basis can be determined only after careful and complete re-evaluation. If the re-evaluation indicates that some sites have not responded completely to root planing and plaque control, flap surgery might still be valuable in order to gain access to root surfaces in residual deep pockets.^{35,41}

To what extent non-surgical treatment may be superior to surgical intervention has yet to be conclusively reported.⁴² Since scaling and root planing may resolve many areas and significantly maintain attachment levels, the institution of initial therapy should be the first choice. Re-evaluation will then guide further needs.

Once Phase I therapy has been completed, and the appropriate time has passed to allow maximum healing, a re-evaluation is conducted to determine the results of therapy. A common error in clinical practice is the



Fig. 11. Pre-initial preparation on a 31-year-old female. Note the tissue looks boggy and edematous. Margins are rolled and blunt.



Fig. 12. Sixteen months post-initial therapy. Note 4 mm of soft tissue shrinkage achieved utilizing meticulous scaling and root planing and the patient's good home care.

failure to allow sufficient time for soft tissue changes.⁴³ Long-term studies indicate that maximum soft tissue response does not occur for many months.^{6,13,14} Pollack⁴⁴ advocates spending 4-6 months on initial therapy. The resolution of gingival inflammation following root debridement is well documented, and with increasing severity of the initial inflammation, there is greater tendency for pocket reduction.^{10,45} Although reattachment is a desirable goal, it is not predictable.¹⁵

Since the overall objective of initial therapy is to control inflammation, the patient must be given enough time for healing to occur, to develop and master skills in plaque removal, and to demonstrate motivation to continue good home care. If the patient cannot keep the visible crowns clean, exposed root structures via surgery may make the areas difficult to clean and will likely result in the failure of surgical procedures.^{46,47}

Based on current information available in the literature, the following recommendations are made:

1. The timing of initial preparation is very important. Therefore, a minimum of four sessions should be devoted to a meticulous scaling and root planing procedure. This, in conjunction with education and motivation of the patient in plaque control measures will be effective in reducing inflammation as well as gain in clinical attachment levels.
2. A minimum of 6-8 weeks should be given for good tissue resolution before Phase I re-evaluation is done.
3. In re-evaluating the tissue, it is helpful to keep in mind that there is no such thing as a standard patient with a standard response. Therefore, the re-evaluation of tissue response to therapy should be a periodic routine of the therapist.
4. Patients with plaque and residual

pockets should be debrided frequently and re-evaluated at shorter intervals.

Researchers and clinicians have shown that periodontal disease comes in many forms and patients respond in a variety of ways. The only current indication of treatment success is tissue response; therefore treatment must be dictated by careful and continual monitoring. As Prichard⁴⁸ noted, "The objective of periodontal therapy should be to retain the teeth in health and function, not to create a mythical ideal."

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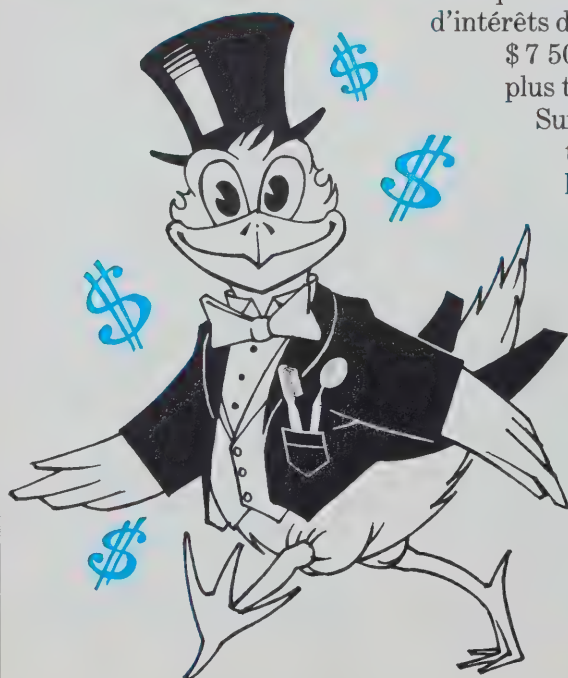
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MCSPADDEN COMPACTOR

VERTICAL CONDENSATION TECHNIQUE TO DELIVER CALCIUM HYDROXIDE

Paul Teplitsky, DMD, MS
Saskatoon, Sask.

SUMMARY

A technique to deliver calcium hydroxide into the root canal system is described and illustrated by clinical examples. The technique involves the use of two consistencies of calcium hydroxide: the first a paste delivered by a McSpadden compactor, the second a thicker mix condensed with vertical pluggers.

SOMMAIRE

Voici des exemples cliniques décrivant et illustrant une technique pour administrer du phosphate de calcium dans les canaux radiculaires. Cette technique utilise le phosphate de calcium sous deux formes: la première est une pâte administrée à l'aide d'un compacteur McSpadden et la seconde, un mélange plus épais condensé à l'aide de maillets verticaux.

The use of calcium hydroxide within the root canal system has become an increasingly popular and documented method of treating a variety of clinical endodontic problems. These include apexogenesis,¹ apexification,² internal and external resorptions,^{3,4} root fractures,^{3,5} and iatrogenic perforations.^{5,6}

The mechanism by which calcium hydroxide promotes healing and hard tissue formation is not fully understood. The material appears to promote osteoid or

cementum-like tissue formation,^{7,8} exert a bacteriocidal influence in the root canal, and have a drying effect in root canals associated with persistent fluid exudate.⁹

There are many commercially available formulations that use calcium hydroxide as the active ingredient. The practitioner must differentiate the type of formulation required, based on its intended use. Cavity liners or pulp capping materials are generally fast setting and/or acid resistant (Dycal, Life). Lately, calcium hydroxide has been incorporated into pastes intended to act as sealers in conjunction with gutta percha in root canal obturation techniques (Sealapex, CRCS). Its use as a temporary root canal filling to promote calcific depositions near or on the root surface requires a paste or powder. Injectable paste formulations are available commercially (Pulpdent Paste, Hypo-Cal); however, the majority of reports seem to favor pharmaceutical grade calcium hydroxide powder mixed at chairside with a suitable liquid such as saline or local anesthetic in order to render it into paste form. Camphorated monoparachlorophenol may be added to increase the bacteriocidal properties of the paste. Also, barium sulfate has been recommended in the mixture to increase the radiopacity, thereby allowing radiographic analysis of proper placement and as an indicator as to when to change the paste.¹⁰ (The paste is resorbed, leading to a decreased radiopacity over a period of time.)

Placement of calcium hydroxide paste into the root canal system can be fairly difficult. This is frequently complicated by the fact that indications for its use are often associated with undeveloped apices and irregular internal root form. The system used must allow for filling of these irregularities. Methods of delivery tried previously include the following: (a) injection using syringes with various gauge needles,⁸ (b) lentulo spiral to spin the material into place,¹¹ (c) jiffy tube³ (d) C-R syringe³ (e) amalgam carriers to deliver it to the canal, then endodontic pluggers of various diameters to condense it into the canal.¹⁰

The McSpadden compactor was developed as an instrument for introducing, thermoplasticizing, and compacting gutta percha into root canals.¹² The compactor resembles a hedstrom file in reverse, and it is used on a latch-type, slow-speed contra-angle. In operation, the compactor softens the gutta percha and pushes it laterally and apically to obturate the radicular space.¹³ As far as the author is aware, the use of the compactor for delivering calcium hydroxide into the root canal has been mentioned in only one article.¹⁴ The purpose of this paper is to report on a "combination" technique of calcium hydroxide placement in root canals using both a McSpadden compactor and endodontic pluggers. This technique has been utilized by the author for the last two years and several case reports are presented.



Fig. 1. Preoperative tooth 1.2 dens in dente, November 1983.



Fig. 2. Calcium hydroxide — vertical plugging only.

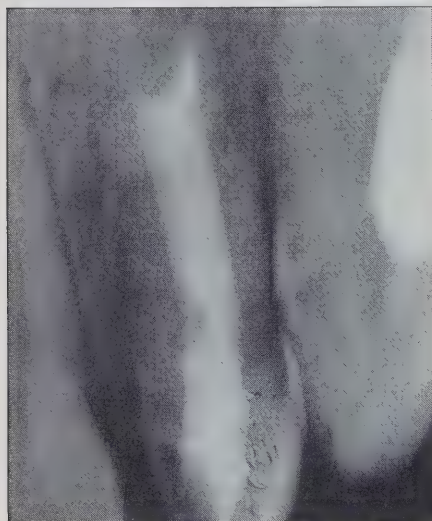


Fig. 3. Calcium hydroxide — combination technique.

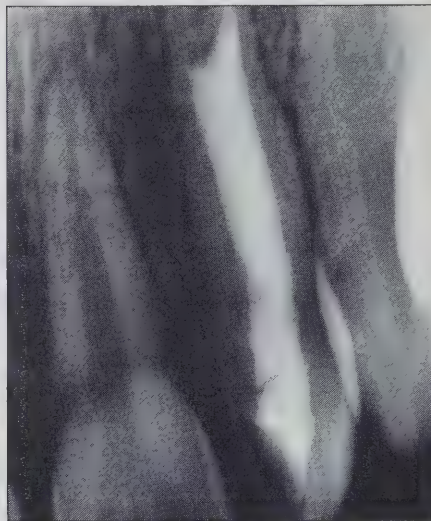


Fig. 4. Recall — calcific barrier, July 1984.



Fig. 5. Completed case — gutta percha, February 1985.

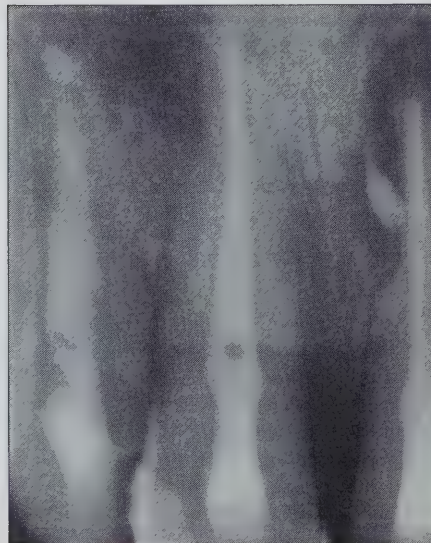


Fig. 6. Avulsed and resorbed teeth — calcium hydroxide.

Technique

The technique of placement is the same regardless of the clinical entity being treated. Apexification of an incompletely formed permanent incisor is chosen as the "descriptive model".

Following local anesthesia, rubber dam isolation and endodontic access, the root canal is debrided as thoroughly as possible, using endodontic K and Hedstrom files along with 2.5 per cent sodium hypochlorite irrigation. An attempt should be made to come near but not penetrate beyond the radiographic length (apical) of the tooth. The canal is dried using sterile absorbent paper points. Calcium hydroxide powder is mixed with barium sulfate powder in an approximate 4:1 ratio. The powders are mixed in local anesthetic solution on a glass slab. In non-vital (necrotic) cases, a drop of camphorated monoparachlorophenol is added to the mixture. The first mix should be in paste form, with enough body to be carried to the canal orifice with a plastic instrument. A prefitted McSpadden compactor (as large as possible but not binding, that fits within 1½ mm of your intended working end point) is coated with the paste, placed in the canal and started. The paste will be channeled into the canal as the compactor turns. A "pumping" action to within 1½ mm of the working length and additions of paste to the compactor may be necessary. A thicker, dryer mix of the material is then made and carried to the canal on a plastic instrument or in an amalgam carrier. This mix is condensed using endodontic pluggers. Once the canal is filled to the cervical orifice, a pledget of sterile cotton is placed and a seal of reinforced zinc oxide-eugenol (IRM) completes the procedure. A radiograph is taken to confirm that deposition of calcium hydroxide has been adequate. Ideally, the film should show all the irregularities or the root canal system filled to the working length with no voids. Some calcium hydroxide may be expressed out apical on lateral openings. Recalls to replace the calcium hydroxide and monitor the patient's progress are generally performed at three-month intervals.

Case 1

A 12-year-old female presented with a draining sinus tract traceable to the apex of tooth 1.2. The radiograph revealed a dens in dente was present in this lateral incisor (Fig. 1). The apex was incompletely formed so an apexification procedure was attempted. Complete removal of the dens in dente was not possible and original delivery of calcium hydroxide by vertical plugging alone was difficult and unsuccessful (Fig. 2). The combination technique of using a McSpadden compactor followed by

vertical plugging led to complete filling of the canal (Fig. 3). A recall nine months after initiating treatment shows the development of an apical calcific barrier (Fig. 4). The case was completed by conventional warm gutta percha obturation 16 months after treatment was initiated (Fig. 5).

Case 2

A 13-year-old male was referred for treatment one year after teeth 1.2, 1.1 and 2.1 had been avulsed in an accident. Previous pulpotomies had been performed but no other treatment was rendered. The teeth were now abscessed and showed signs of external resorption. Figure 6 indicates the

successful delivery of calcium hydroxide by the combination technique into the root canal system of these teeth. The extrusion of material beyond the apices of 1.2 and 1.1, and out the mesiolateral resorbed root surface of tooth 2.1 is evident. This expression of material is evidence that the material is being delivered to the critical areas. Material expressed in this manner is gradually resorbed by the body.

Case 3

A 29-year-old female was being treated by a dental student for a post and core build-up prior to crown placement. An iatrogenic perforation is obvious on the mesial aspect

of the distal root of tooth 4.6 (Fig. 7). After hemorrhage was controlled, the combination technique was used to repair the defect (Fig. 8).

The author has used the McSpadden compactor-vertical condensation combination technique for the delivery of calcium hydroxide in a variety of clinical situations. The technique is fast, convenient, effective and reproducible.

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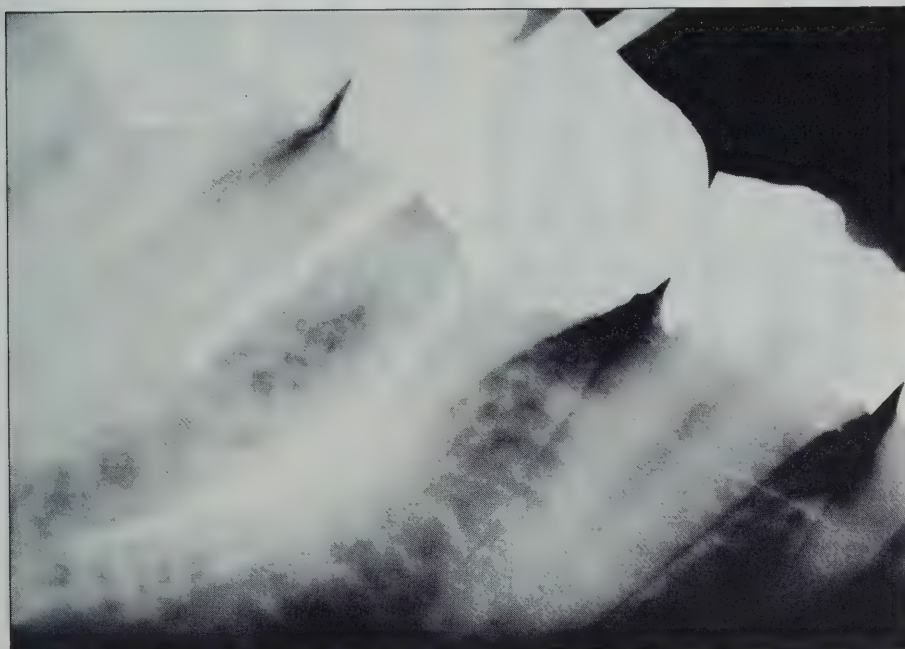


Fig. 7. Iatrogenic perforation.

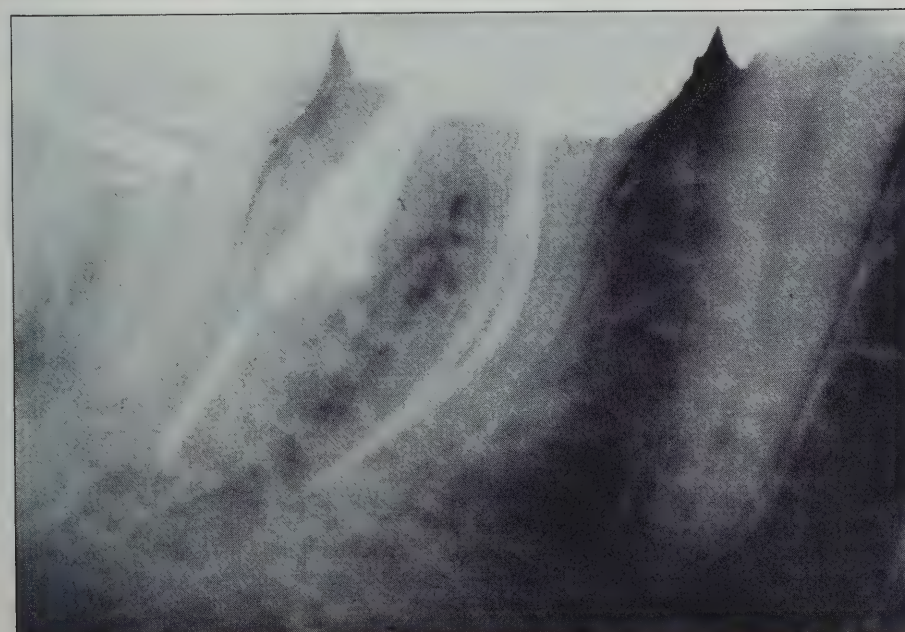


Fig. 8. Calcium hydroxide repair — combination technique.

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September 18-20: The Ninth Annual Greater Niagara Frontier Dental Meeting. Buffalo Convention Centre, Buffalo, New York. Contact: Pauline Bress, Director, Continuing Dental Education, 167 Farber Hall, Buffalo, N.Y. 14214, 716-831-2320.

September 20-21: Canadian Craniofacial Society symposium and annual general meeting. Toronto Hospital for Sick Children, Toronto, Ontario. Contact: Dr. Gordon Wilkes, 1004-10045 — 111 St. Edmonton, Alta, T5K 2M5.

September 20-25: Canadian Paediatric Society 63rd annual meeting, Hilton Harbour Castle, Toronto, Ontario. Contact: Canadian Paediatric Society Secretariat, Children's Hospital of Eastern Ontario, 401 Smyth Rd. Ottawa, Ont. K1H 8L1, 613-737-2728.

September 21: Canadian Hypertension Society is sponsoring a forum on "Community Approaches to High Blood Pressure Prevention and Control", 1-5 pm, Toronto, Ontario. Contact: Community Approaches to High Blood Pressure Prevention and Control, c/o Dr. Karen Mann, Hypertension Unit, Camp Hill Hospital, 1763 Robie Street, Halifax, N.S. B3H 3G2.

September 24-27: Annual Meeting of the American Academy of Periodontology, Cleveland Convention Centre, Cleveland, Ohio. Featured speaker is Dr. Per-Ingvar Branemark. Contact: Jean Pierson, The American Academy of Periodontology, Room 924, 211 E. Chicago Ave., Chicago, Ill. 60611-2690, 312-787-5518.

September 24-29: Canadian Academy of Endodontics Annual Meeting, Four Seasons Hotel, Vancouver, B.C. Contact: Dr. S.K. Sinanan, 925 West Georgia St. Suite 1015, Vancouver, B.C. V6C 1R5.

September 25-27: New Orleans Dental Conference, New Orleans Hilton Hotel. Contact the Conference Office, 504-834-6449.

September 26-28: 3rd Samuel Seltzer Endodontic Symposium "Endodontic Flare-ups" Hershey Hotel, Broad and Locust Streets, Philadelphia, Pennsylvania. Contact: Dept. of Endodontology, Temple University School of Dentistry, 3223 North Broad St., Philadelphia, PA, 19140, 215-221-2810.

OCTOBER/OCTOBRE

October 9-11: Dental Tecnic '86, International Dental Prosthesis Exhibition. Barcelona Spain. Contact: Associacio Empresarial de Protesics Dentals de Catalunya, Arago 120, Entalo 2 a, 08015 Barcelona, Spain.

October 18-23: American Dental Association, 127th Annual Session, Miami Beach Convention Centre and Fontainebleau Hilton Hotel. Contact: American Dental Association, 211 E. Chicago Ave., Chicago, Ill. 60611, 312-440-2726.

October 22-25: American Medical Writers Association 1986 Annual conference. Sheraton Palace Hotel, San

Francisco, California. Contact: Lil Sablack, Executive Director, American Medical Writers Association, 5262 River Rd. Suite 410, Bethesda, Maryland, 20816, 301-986-0110.

October 24-28: The 43rd Annual Meeting of the American Institute of Oral Biology Spa Hotel, Palm Springs, California. Contact: Executive Secretary, P.O. Box 481, South Laguna, California. 92677.

October 31-November 1: Professional Development Committee of the Ontario Dental Association and the Ontario Society of Endodontists present the Symposium on Clinical Endodontics. Featured speakers include Drs. H. Trowbridge, D. Aren, R. Burns, S. Cohen, J. Namias, W. Cunningham, J. Schoeffel, A. Machanowicz, M. Fagin and R. Greenfield. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ont. M5R 2P1 416-922-3900.

NOVEMBER/NOVEMBRE

November 2-8: National Crime Prevention Week. Contact: Pauline Dodds, Coordinator, National Crime Prevention Week, Ministry of the Solicitor General of Canada, Ottawa, Ont.

November 7-9: Myo-tronics Research Inc., presents a seminar entitled "Neuromuscular Diagnosis and Precision Orthotics". New Orleans. Featured speakers will be Dr. W. Edward Duncan and William Oakes, CDT. Contact: Myo-tronics Continuing Education Programs, 1-800-426-0316.

November 16-19: The Saul Kamen Seminar on the Dental Management of the Mentally Retarded and the Developmentally Disabled Patient. Teaching Center Auditorium, Long Island Jewish Medical Centre, New Hyde Park, New York. Sponsored by the Dept. of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center, State University of New York, at Stony Brook. \$450 for dentists, \$250 for auxiliaries. Contact: Ann Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York, 11042, 718-470-8650.

November 17-21: Second International Congress on Gerodontology, Stamford-Westin Plaza Hotel, Raffles City, Singapore. Hosted by the Singapore Dental Association. Contact: Organizing Secretary, 2nd International Congress of Gerodontology, Singapore Dental Association, Medical Alumni, 4A College Rd. Singapore 0316, Republic of Singapore.

November 20: Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre, Toronto, Ont. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 25-28: 6th Annual Sports Medicine Seminar "Sports Medicine for All Practitioners", Intercontinental Hotel, Maui, Hawaii. Contact: Dr. Stuart Zeman, Course Chairman, 2999 Regent St., Suite 203, Berkeley, California, 94705, 415-540-8686.

November 27-29: International Implant Seminar, Hong Kong. Co-sponsored by the Canadian Society of Oral Implantology and other international implant groups. Contact: Barbara Cleland, Exec. Secretary, Canadian Society of Oral Implantology, Box 84, Site 7, RR 1, Calgary, Alta. T2P 2G4, 403-284-9767.

1987+

January 3-4, 1987: Academy of Dental Materials Annual Meeting, Walt Disney World Conference Centre, Orlando, Florida. Contact: Sybil Greener, Executive Secretary, Academy of Dental Materials, Dept. of Bio-

logical Materials, Rm. 10-019, Northwestern University Dental School, 311 E. Chicago Ave., Chicago, Ill. USA 312-642-9570.

January 5-8, 1987: The Indian Association for Dental Research Workshop-cum-Conference on Fluoride and Dental Health, Madras, India. Contact: Prof. M. Rahmatulla, Convenor, International Workshop-cum-Conference on Fluoride and Dental Health, Dental Dept. Government Kilpauk Medical College Hospital, Madras, 600 010, India.

January 29-31, 1987: Miami Winter Meeting, Hyatt Regency Miami. Contact: Dotti DuBreuil, Coordinator, Miami Winter Meeting, 420 South Dixie Highway, Coral Gables, Florida, 33146, 305-667-3647.

March 19-21, 1987: CATCH '87: Computer Applications to Canadian Health. Organized by the College of Family Physicians in Canada. Hilton Harbour Castle, Toronto, Ont. Contact: CATCH '87, 4000 Leslie St. Willowdale, Ont. M2K 2H9 416-493-7638.

May 24-28, 1987: CDA/ODO Convention, Montreal, Quebec. Contact: Canadian Dental Association, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

June 7-11, 1987: 11th Congress, International Association of Dentistry for Children, Toronto, Ont. Contact: Secretariat, 11th Congress, IADC, Dept. of Pedodontics, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto, Ont. M5G 1G6.

June 18-21, 1987: University of British Columbia and the Royal College of Dental Surgeons of B.C. 25 year celebration and 1987 Convention. Contact: College of Dental Surgeons of B.C., 1125 West 8th Ave., Vancouver, B.C. V6H 3N4, 604-736-3621.

June 28-July 1, 1987: Pacific Dental Conference sponsored by the Pacific Dental Federation and the Alberta Dental Association, Banff Springs Hotel, Banff, Alberta. Contact: Dr. J. William Blair, 621 Haral Building, Calgary, Alta., T2P 0W7.

July 1, 1987: Applications are being accepted for the Postdoctoral Program Dental Diagnostic Science at the University of Texas Health Science Center, at San Antonio, for the class beginning July 1, 1987. Contact: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Dr., San Antonio, Texas, 78284.

October 10-15, 1987: American Dental Association Annual Convention. Las Vegas, Nevada. Contact: ADA, 211 E. Chicago Ave., Chicago, Ill. USA 60611.

September 24-25, 1987: British Society of Oral Medicine meeting, in the Royal College of Surgeons of England, London, England. Contact: Dr. David Wray, British Society of Oral Medicine. Dept. of Oral Medicine and Oral Pathology; High School Yards, Edinburgh, Scotland, EH1 1NR.

October 24-30, 1987: 85th Annual World Dental Congress of the FDI. Buenos Aires, Argentina. Contact: Dr. R.H. Lemme, Congressos Internacionales, SA, Moreno 584-9e, Piso (1091) Buenos Aires, Argentina.

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Safety for use in pregnancy has not been established. Although the antibiotic crosses the placental barrier and appears in breast milk, fetal plasma concentrations are generally low.

The rare possibility of superinfection caused by overgrowth of nonsusceptible bacteria or fungi should be kept in mind during prolonged or repeated therapy, especially when other antibacterial agents are simultaneously employed. In such instances, the drug should be withdrawn and appropriate treatment instituted if necessary.

Toxic reactions as a result of significant elevations of serum theophylline concentrations have been observed in patients after initiation of erythromycin treatment. Ensure that serum theophylline concentrations in such patients are monitored.

Adverse Effects: The most frequent adverse effects of erythromycin preparations are gastrointestinal, such as abdominal cramping and discomfort, and are dose-related. Nausea, vomiting and diarrhea occur infrequently with usual oral doses.

Mild allergic reactions, such as urticaria and other skin rashes, have occurred. Serious allergic reactions, including anaphylaxis, have been reported.

Dosage: Although erythromycin ethylsuccinate preparations can be administered regardless of meals, optimum blood concentrations are obtained when the antibiotic is administered immediately after meals.

Children: In mild to moderate infections, the usual dosage of erythromycin ethylsuccinate for children 6 months to 10 years (weight 7 to 32 kg) is 30 to 50 mg/kg/day in equally divided doses. For more severe infections, this dosage may be doubled. If twice-a-day dosage is desired, one half of the total daily dose may be given every 12 hours.

In the treatment of streptococcal infections, administer a therapeutic dosage of erythromycin ethylsuccinate for at least 10 days.

Presurgical prophylaxis of endocarditis in children: 30 to 50 mg/kg/day divided into 3 or 4 evenly spaced doses.

Intestinal amebiasis in children: 30 to 50 mg/kg/day in divided doses for 10 to 14 days.

Adults: 600 mg, three times a day is the usual dosage. Dosage may be increased to 4 g or more per day according to the severity of the infection.

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In the treatment of streptococcal infections, a therapeutic dosage of erythromycin should be administered for at least 10 days. In continuous prophylaxis of streptococcal infections in persons with a history of rheumatic heart disease, the dose is 600 mg twice a day.

When used prior to surgery to prevent endocarditis, a recommended schedule for adults is: 600 mg before the procedure and 600 mg every 8 hours for 3 doses after the procedure.

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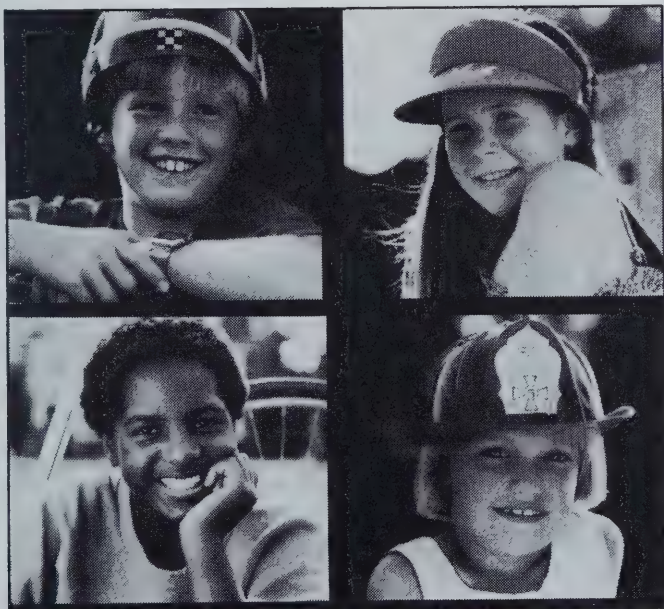
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1. Butzler JP et al. Chemother 1979;25:367-372.
2. Crawford LV, Roane J. Annals Allergy 1969;27:13-22.

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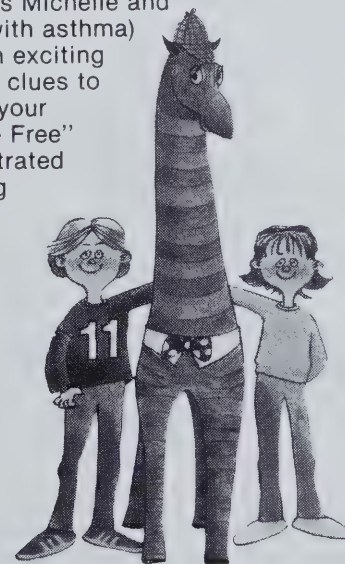
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- References: 1. LAMSTER, I. et al.: Clin. Prev. Dent., 6:12 (1983).
2. MENAKER, L. et al.: Ala. J. Med. Sci., 16:71 (1979).
3. ROSS, N.M., et al.: Warner-Lambert research report #955-0875 (1976).
4. YANKELL, S.L., et al.: Warner-Lambert research report #955-0893 (1976).

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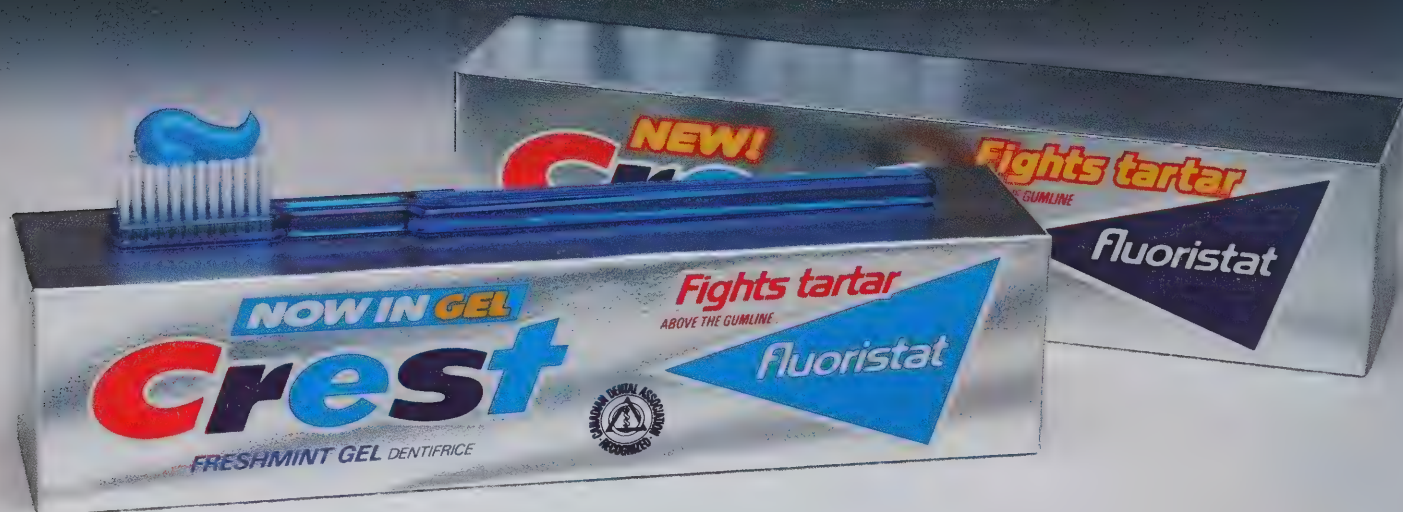
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CANADIAN DENTAL ASSOCIATION

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JOURNAL

Canadian Dental Association de l'Association Dentaire Canadienne

EDITORIAL 797

CFDE Chairman advises that "it's recall time at the CDFE".

NEWS UPDATE 798

Ontario dentists and provincial government reach insurance plan fee agreement.
BGen J.F. Bégin named Director General, Canadian Forces Dental Services.
AIDS information now being provided by Health and Welfare Canada.
Forensic dentistry symposium is first of its kind ever held.
Significant anniversary for Montreal Dental Study Club.
Dental Awareness Program update.
Did You Know?
Ad Lib column.

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Dental news items from across Canada and around the world.

LETTERS 812

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CDA RESOURCE CENTRE 813

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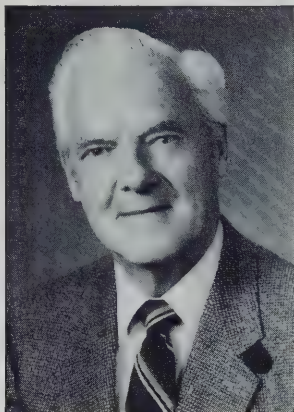
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IT'S RECALL TIME AT C.F.D.E.



Every dentist knows that the yardstick to the success of his practice is his recall system, together with the regular addition of new patients.

The same is true of the Canadian Fund For Dental Education.

It is once again time to recall so many of you who contributed most generously last year. Your support is respectfully solicited for 1986, with thanks. A number have missed their recalls for a year or two. To keep our "practice" strong and healthy please join us again with your donation.

Like a dental practice, C.F.D.E. has to grow to meet the needs of our profession, and a special appeal is being made for new contributors.

It is a well known fact that people cannot be bullied or shamed into donating for a cause, organization or charity. They must be convinced of its worth and feel a responsibility for it. This is the reason that the Canadian Fund for Dental Education continues to inform you of its very worthwhile pursuits.

The Trustees were pleased to approve a total of \$175,000 in grants to benefit the profession in 1986. Teaching Fellowships amounted to \$41,500, the Biennial Conference on Dental Education and Research \$12,500 and the second C.F.D.E./A.C.F.D. Summer Teaching Institute received \$20,000.

To meet the changing needs of the profession, an additional \$20,000 is to be spent on dental awareness programs. The Student Clinician Program and Students' Conference will be supported in the amount of \$15,000 and a conference on Periodontics will receive funding of \$7,500. The Canadian Dental Hygienists' Association will have \$9,500 support for their programs. There's support for the National Self-Assessment/Education Program for Dentists and the continuing sponsorship of The Murray McDonald Memorial Lecture plus grants for dental schools.

C.F.D.E. is not a charitable appeal — it is an investment in our future. The support of the dental trade and industry and members of dental associations and auxiliary groups is vital to C.F.D.E. and its ability to continue providing the assistance necessary to help dentistry keep pace with the future.

The major appeal for support of course, comes in October, which has for twenty-four years, been *C.F.D.E. Month in Canadian Dentistry*.

Lets now make every month C.F.D.E. month. Everyone wins, the student, the auxiliary, the dentist and ultimately the general public, for whom we serve.

*J.F. Reid, DDS, FICD,
Chairman, Board of Trustees,
C.F.D.E.*

EXTRA BILLING ENDS

Ontario Government-dentists reach fee agreement

As an adjunct to the passage of Ontario's Bill 94, which banned extra billing by dentists, physicians and optometrists, the Ontario Government reached an agreement with dentists and oral surgeons late in the summer which boosts the fees for insured services covered by the Ontario Health Insurance Plan (OHIP).

The two-year agreement, Ontario Health Minister Murray Elston stated, would provide for an average increase in the OHIP fee schedule of approximately 55 per cent, and this became effective July 25. A further increase of four per cent would become effective on April 1, 1987.

The talks with officials of the Ontario Dental Association over a seven-month period, convinced the Health Ministry to recognize that the adjustments were overdue. "The increases recognize that since 1979-80, OHIP fee adjustments for both dentists and oral surgeons have lagged significantly behind those received by physicians," Mr. Elston said.

Added coverage

The Minister also noted that "we are adding 14 surgical procedures to be included as new insured health care benefits in Ontario." These include new developments in cleft lip repair, high technology procedures such as microscopic surgery and new surgical techniques on facial joints and nerves.

The agreement has resulted in the termination of coverage for the removal of impacted teeth in a hospital. Such procedures will now be conducted in the dentist's office and will only be insurable if the patient's medical condition presents a hazard, and must undergo the procedure in a hospital. Such conditions would be diabetes, epilepsy, haemophilia and heart conditions.

The Government was assured by the dentists that most extractions of impacted teeth "could be done and should be done in their offices."

"Increase" aspect debatable

ODA Executive Director John Gillies has some difficulty with the 55 per cent "increase" figure quoted by Mr. Elston. "It's a figure picked out of the air" by the Minister, he told the Journal. He said it would be difficult to arrive at a hard and fast figure because so many factors are involved.

However, Mr. Gillies continued, "it's a compromise that everyone can live with."

Dr. J.H. Gryfe, of Weston, Ontario, and Chairman of CDA's Council on Hospital and Institutional Services, believes the figures the Government was quoting were "all red herrings. The Government was talking apples and we were talking oranges." He told the Journal that "they haven't given me a raise at all. In fact, they have decreased my fees" for certain procedures. He explained that although OHIP may previously have only covered about 30 per cent of the fees for some surgical procedures, "balance-billing" allowed the oral surgeon to recover the other 70 per cent. Now the practitioner cannot balance bill, and the "increase" in OHIP fees covers only a portion of the total fee.

Suspended services

A number of the dentists and oral surgeons who occasionally or regularly provide services in hospitals, suspended their services in protest when Bill 94 — "The Health Care Accessibility Act" was passed — on June 20.

They agreed to return to the hospitals for all forms of dental surgery, including medically necessary wisdom tooth extractions, when the Government concluded the agreement with the Ontario Dental Association.

Bill 94 includes a proviso that makes it possible for the health minister to enter into an agreement with associations representing dentists, physicians or optometrists, to provide methods of negotiating and determining the amounts payable under the provisions of the Ontario Health Insurance Plan.

ODA Executive Director John Gillies said

that of Ontario's 5,000 dentists, about 10 per cent are involved occasionally or regularly in hospital dental procedures. Only a handful of those 500 derive most of their income from OHIP fees, he said.

BGEN J.F. BEGIN NAMED DIRECTOR GENERAL, CANADIAN FORCES DENTAL SERVICES

Brigadier-General John Frederick Begin, a familiar figure in Canadian Dental Association circles, has been appointed Director General of Canadian Forces Dental Services, effective June 30, last.

He succeeds Brigadier-General James N. Wright, who retired recently. BGen Wright has taken a position as Head of the Department of Stomatology, Faculty of Dentistry, University of Manitoba.

Native of Moncton, N.B.

BGen Begin was born in Moncton, New Brunswick and received his early education



BGen J.F. Begin

there. He is a graduate of the University of Montréal, where he obtained a BA in 1954 and his DDS degree, in 1959.

His military career began in the third year of his undergraduate training. After he received his DDS, BGen Begin was posted to Quebec City and then to Goose Bay, Labrador (1961-64).

During his career, BGen Begin has served with 4 Canadian Infantry Brigade Group, in Germany; at CFB Winnipeg, and, as an instructor at the Canadian Forces Dental School CFB Borden, after obtaining a diploma in Dental Public Health from the University of Toronto, in 1970.

Further appointments included base dental officer, CFB St. Jean, Québec, (1972-76); director of Dental Treatment Services (3) at National Defence Headquarters from 1976 to 1979, and, Commanding Officer, 15 Dental Unit, from November 1979 to June, 1980. His last appointment was as Commandant of the Dental Service School, in 1985.

Royal honors

In 1983, BGen Begin was appointed Queen's Honorary Dental Surgeon (QHDS) to Her Majesty Queen Elizabeth II.

He is presently a member of the Canadian and Ontario Societies of Public Health Dentists.

Active with CDA

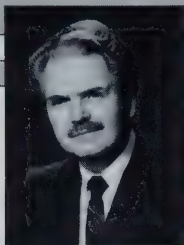
He has been actively involved with the CDA for a number of years, serving from 1976 to 1982 as a member of the Council on Health Care, and is presently a member of the Council on Education.

BGen Begin is also a member of the Association of Canadian Faculties of Dentistry and has served on the Canadian Standards Association Technical Committee on Dentistry. He is also a former member of the Conference of Provincial Secretaries and Licensing Authorities.

AIDS INFORMATION NOW AVAILABLE FROM HEALTH AND WELFARE CANADA

The National AIDS Centre at the Health Protection Branch of Health and Welfare Canada, recently released the first of quarterly updates on AIDS statistics and information available for health professionals and the public, across Canada.

The Quarterly, which is available in English or French, details the status of AIDS cases in each province to date, lists current research being undertaken in the province and gives a list of material available for public and professional education on the



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

THE C.D.A. ALMOST DIED!!

Upon reviewing old files from ten years ago two items came to light
January 1975, from a newspaper story:

"Citing low morale, overspending and non-payment of dues, the president of the C.D.A. said his organization is doomed unless drastic changes are made. "The C.D.A. cannot continue the way it is. It is on the crash course to Oblivion. The C.D.A. is disorganized, uncoordinated and unproductive".

June 1976, from a letter written by one concerned Corporate Body Executive Director to his counterparts across the country: *"The C.D.A. is dying. Do we even care? By the apparent lack of concern on our part we may be administering the coup de grace. Although small pockets of dentists may be concerned, the C.D.A. is very close to death, no one is coming forth with a positive action to save the C.D.A."*

DID YOU KNOW: The C.D.A. has never been healthier!!

Apparently those "small pockets of concerned dentists" laid on healing hands. They knew that in order for the Profession to remain strong and healthy, a unified, cohesive national organization *must* exist. Firm decisions, not always popular, had to be made, but foresight and courage bore results. By March of 1977, C.D.A. had moved from Toronto into its new headquarters in Ottawa and there has been steady, continuous growth and health since.

DID YOU KNOW: the C.D.A. since 1980, with sound financial management, has had a net surplus of revenues over expenses of \$1,000,000. This despite the *planned* deficits of \$500,000 to mount the single, biggest, national public relations endeavor in C.D.A.'s history — the Dental Awareness Program.

DID YOU KNOW: the C.D.A. is concerned about what dentists and dental organizations think of us. As part of the Strategic Planning process initiated in the fall of 1984, the Niagara Institute was commissioned to conduct a series of personal interviews with the leaders of all facets of dentistry. From coast-to-coast, meetings were held with provincial associations, licensing authorities, governments, dental colleges, supply houses and auxiliaries to determine their views, their needs and their desires.

The responses were carefully analyzed by C.D.A.'s Management Committee and Executive Council and the greatest concerns are being dealt with as quickly as possible. It is no mere coincidence that many of the suggestions received are today receiving concerted attention: items such as Government Relations, Dental Awareness, "Busyness", and Alternate Dental Services are high upon C.D.A. list of priorities.

DID YOU KNOW: historically. (From the February 1906 issue of the Dominion Dental Journal.) "For Sale: A dental practice in a beautiful Western Ontario town for sale. One of the best practices in Ontario. Cash receipts between \$200 and \$300 per month. Satisfactory reasons for selling."

subject of AIDS. The Quarterly also lists surveillance systems in place in each province for the detection of AIDS and laboratory capabilities, as well as contacts in community and provincial government organizations.

A list of provincial and community contacts in each province, as detailed in the first edition of the Quarterly, is printed here for the information of Journal readers.

British Columbia

Community Support Organizations:

AIDS Vancouver: contact: Mr. G. Price

AIDS Vancouver Island: contact: Mr. G. Sullivan

Provincial Government:

Dr. T. Johnstone, Director, Division of Epidemiology, B.C. Ministry of Health.

Dr. W.A. Black, Director, Division of Health, BC Health Branch.

Alberta

Community Support Organizations:

Calgary AIDS Committee
AIDS Network of Edmonton

Provincial Government:

Dr. J. Waters, Director, Communicable Disease Control and Epidemiology, Alberta Social Services and Community Health.

Dr. J.M.S. Dixon, Director, Provincial Laboratory of Public Health.

Alberta also has a Provincial Advisory Committee. Dr. J. Waters is the Chairperson of the Alberta Advisory Committee on AIDS.

Saskatchewan

Community Organizations:

AIDS Regina
AIDS Saskatoon

Provincial Government:

Dr. R. West, Director, Provincial Laboratories, Dept. of Public Health.

Provincial Advisory Committee:

Mr. G. Loewen, Chairman, The Saskatchewan Advisory Committee on AIDS.

Manitoba

Community Support Organizations:

AIDS Committee of Winnipeg, Mr. H. Backe
The Winnipeg Gay Community Health Centre, Mr. J. Agar.
The Hemophilia Support Group.

Provincial Government:

Dr. M. Fast, Provincial Epidemiologist, Dept. of Health and Social Development.
Dr. G. Hammond, Director, Cadham Provincial Laboratory.

Provincial Advisory Committee:

Dr. G. Hammond, Chairperson of the Manitoba HTLV-III Subcommittee.

Ontario

Community Support Organizations:

AIDS Committee of Toronto: Contact: Dr. T. Alloway
AIDS Committee of Hamilton, Contact: Ms. S. Robinson
AIDS Committee of Ottawa, Contact: Mr. B. Read
AIDS Committee of Windsor, Contact: Mr. J. Monk
AIDS Committee of Cambridge, Kitchener, Waterloo and Area, Contact: Mr. M. Harris.
AIDS Awareness Kingston, Contact: Mr. F. Lachance.
AIDS Committee of London, Contact: Mr. R. Green.
AIDS Committee of Thunder Bay, Contact: Mr. M. Sabota.

Provincial Government:

Dr. P. Kendall, Physician Manager

Disease Control and Services, Ontario Ministry of Health.

Dr. J.A. Browne, Chairperson, Ontario Public Education Panel on AIDS.

Dr. D. Willoughby, Director, Laboratory Health Services Branch.

Quebec

Community Support Organizations:

Montreal AIDS Resource Committee (MARC-ARMS) Contact: Mr. D. Cassidy
Comité SIDA Aide Montreal, Contact: Mr. R. Bryzinsky.

Provincial Government:

Dr. J.P. Breton, Consultant, Maladies infectieuses, Service de promotion de la santé, Ministère des Affaires sociales.
Dr. M. Brazeau, Directeur scientifique intérimaire, Ministère des Affaires sociales, Direction des laboratoires.

Quebec also has a provincial advisory committee. Dr. R. Morriset, is chairperson of the Comité SIDA Quebec.

New Brunswick

There are presently no formal community support organizations in this province.

Provincial Government:

Dr. D.J. Walters, Director, Public Health Services.

Dr. J.S. MacKay, Chief of Service Dept. of Lab Medicine, Saint John Regional Hospital.

New Brunswick does not currently have a provincial advisory committee in place.

Nova Scotia

Community Support Organizations:

Metro Area Committee on AIDS (MAC-AIDS).

Provincial Government:

Dr. P.M. Lavigne, Provincial Epidemiologist, Nova Scotia Department of Health.

Dr. K. Rozee, Director of Laboratories, Department of Health Pathological Institute.

Newfoundland

Community Support Organizations:

AIDS Information Committee, contact: Mr. G. Upward.

Provincial Government:

Dr. D. Severs, Chief Medical Health Officer, Dept. of Health.

Dr. R.W. Butler, Director of Laboratories, Newfoundland Public Health.

Newfoundland has no provincial advisory committee at this time.

Prince Edward Island

Prince Edward Island at the present time has no community support organizations for AIDS available.

Provincial Government:

Dr. R. Stewart, Provincial Epidemiologist, P.E.I. Department of Health.

There is no provincial advisory committee at this time.

Yukon and Northwest Territories

Neither the Yukon nor the Northwest Territories currently have any community support organizations or provincial government contacts at this time. As of June 23, 1986, there had been no reported cases of AIDS in this region of Canada.

The information detailed in the above article, along with a list of educational material is available from Penny L. Nault, National AIDS Centre, Health and Welfare Canada, Health Protection Branch, Room 202, Laboratory Centre for Disease Control, Tunney's Pasture, Ottawa, Ontario, K1A 0L2.

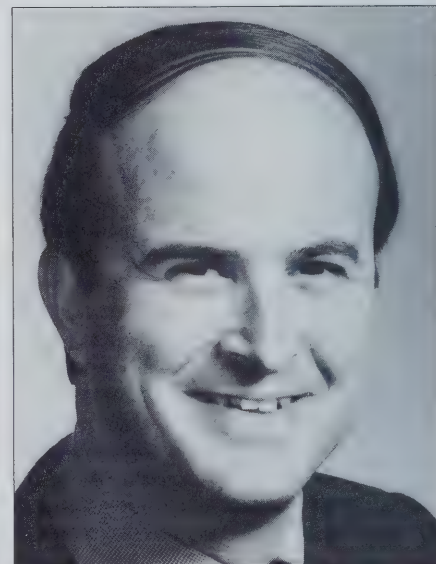
ACFD BIENNIAL CONFERENCE THEME IS APPLIED RESEARCH

The Association of Canadian Faculties of Dentistry, in conjunction with the Canadian Association for Dental Research recently held their 14th Biennial Conference.

The overall theme of the conference is always "Canadian Dental Research and Education", but a particular emphasis at this year's meeting was clinically applied research and how to get started in the clinically applied research field.

The conference was well attended, with more than 120 registered delegates in attendance. All 10 faculties of dentistry were represented across Canada, and several well-known speakers from the U.S. and Canada presented papers.

One of the keynote speakers was Dr. George Zarb, of the Faculty of Dentistry, University of Toronto who is an acknowledged expert in the field of dental implants.



Dr. George Zarb, keynote speaker.

His topic was entitled "Osseo-integrated Implants".

Another invited keynote speaker was Dr. William Douglas, from the University of Minnesota, who spoke on "Computerized Simulated Occlusion." Both lectures by Drs. Zarb and Douglas were well attended by delegates.

The educational part of the program was provocatively entitled "Dental School — Some Like It Not" and presented several workshops of interest to dental educators in attendance. Included in this element of the conference were discussions on such topics as teaching techniques, skills assessment, performance tests and curriculum overcrowding.

The next ACFD/CADR Biennial Conference will be held in 1988. The site had not been determined at press time.

DR. J.D. AITKEN HEADS ALBERTA ASSOCIATION

Dr. J.D. Aitken of Calgary was named President of the Alberta Dental Association for the 1986-87 term at the annual meeting of the Board of Directors.

Dr. G.R. Sandercock of Peace River, Alberta, is the Past-President and the President-elect is Dr. V.H. Jones, of Calgary.

Dr. R.D. Sandilands of Edmonton will serve as Vice-President.

Directors named at the meeting were: for Calgary — Dr. Brian Abrams, Dr. V.H. Jones and Dr. J.D. Aitken; for Edmonton — Dr. R.D. Sandilands, Dr. G.D. Harle and Dr. W.G. Mabey; for the Northern District — Dr. G.H. Pinsonneault, of Cold Lake; for the Central District — Dr. Wayne Brattley, of Red Deer. Dr. Gordon Anderson of Lethbridge, will also occupy a seat on the Board of Directors.

The Alberta Dental Association's annual Convention was held at Grand Centre, Alberta, July 30 — August 2.

FORENSIC DENTISTRY SYMPOSIUM FIRST OF ITS KIND EVER HELD

A symposium on Dentistry's Role and Responsibility in Mass Disaster Identification, the first of its kind anywhere, was held at the American Dental Association headquarters in Chicago in late June.

Speakers included this continent's best-known forensic dental experts, United States senators and military personnel.

Canadian participants included Dr. Robert B.J. Dorion, of Montréal, Immediate Past-President of the American Board of Forensic Odontology and Dr. George E. Burgman, of Niagara Falls, the current President of the Canadian Society of Forensic Science.

New approach

A new development in post mortem identification was discussed in a workshop led by Dr. Dorion, who helped develop a computer assisted data automation process. The system has already been put to the test as an aid in the identification process in mass disaster management.

Dr. Dorion explained that each dental specimen should be compared to the entire data base. Objectivity of the program parameters is of the utmost importance in the analysis, he pointed out. The portability and adaptability of the system are also important criteria.

Dr. Dorion was contacted by the RCMP following the Gander, Newfoundland, disaster of December 12 last, when 248 U.S. military personnel and six civilians were killed in an aircraft crash. He was asked to head a team to help identify victims through dental records. He said that 77 per cent of these victims were identified in this manner. The disaster resulted in a move by the United States military authorities to duplicate all dental records, and to keep one set in a central repository. Every single person in the U.S. armed forces will henceforth get a duplicate Panorex taken.

Col. Robert McMeekin, head of the Armed Forces Institute of Pathology, a speaker at the symposium, was given a special temporary licence to practice medicine and be a coroner in Newfoundland, after legal and jurisdictional problems had been resolved by the External Affairs Department, the U.S. State Department and the Government of Newfoundland. The corpses were then repatriated to the United States for autopsy and identification procedures.

Col. McMeekin is a lawyer, physician and a certified forensic pathologist.

Nomenclature

One of the major concerns during the symposium was the lack of a uniform international dental nomenclature system. In Canada, the Fédération dentaire internationale (FDI) system is used. Dr. Dorion told the JCDA that there are at least 36 methods used around the world today. Although forensic dentists are aware of these methods, a uniform system would be desirable.

Forensic dentistry achieved prominence in Canada in 1949, following a fire disaster aboard the cruise ship "S.S. Noronic", when 118 lives were lost. Dental disaster protocol was thus established, as a result of that incident.

Wide representation

About 180 people attended the symposium from 36 states, Canada and Central America. The event was sponsored by the

American Board of Forensic Odontology, the American Dental Association and Northwestern University dental school. This was the first occasion on which the American Dental Association has been involved with a session devoted to the specialty of forensic dentistry.

Themes

Some of the subject matter discussed in workshops included: Terminology and Criteria, Organization Disaster Planning and Forensic Data Flow, Crash Site Protocol, Antemortem Protocol, Postmortem Protocol, Criteria for Comparison, Civil Unrest and Acts of Terrorism, Mass Murders, the Role of Dental Societies and Contemporary Forensic Issues.

Speakers also represented the National Transportation Safety Board, the Federal Aviation Administration, the Federal Bureau of Investigation, the National Association of Medical Examiners and the insurance industry.

There were discussions of major fire disasters, such as that at the MGM Grand Hotel in Las Vegas, natural disasters such as the eruption of Mount St. Helen's, occupational disasters, for example, the Wilberg mine disaster in Utah, and the following air disasters: Eastern Flight 401 in Florida; PSA Flight 182 in San Diego; Pan Am Flight 759 in New Orleans and Delta Flight 191 in Dallas, as well as military mass disaster management.

The keynote address was by Massachusetts Senator Louis P. Bertonazzi, who was the first person with legislative authority to recognize forensic dentistry as a specialty in the United States. Legislation he introduced several years ago, recognized forensic dentistry in an official capacity and created an official office.

FDI URGES ASSOCIATIONS TO SUPPORT STANDARDIZATION

An international certification program which would permit free movement and availability of dental products is the ultimate aim of the FDI through its Commission on Dental Products and in cooperation with the International Organization for Standardization (ISO) Technical Committee 106, Dentistry.

At present many of the delegations to ISO/TC106 have little representation of the dental profession on them. For the most part they are led by representatives of national standardization organizations and/or dominated by the dental industry. It is therefore very important for member associations of the Federation to become involved in their countries and sponsor national standardization committees for dentistry and provide

support for professional representation at international meetings of ISO/TC106. This will enable the dentist to have a leading role in the development of international standards which quite probably will govern the availability of dental products in the future as more and more countries adopt national regulations to control dental materials, instruments and equipment.

The FDI has been involved in creating international specifications for dental materials since 1953 when its then Commission on Research was charged with furthering this aim.

In 1958, the FDI contacted the International Organization for Standardization (ISO) asking if they would consider FDI specifications for dental materials as ISO standards. The result of this liaison was the establishment in 1963 of an ISO Technical Committee for Dentistry (ISO/TC106). The Technical Committee has as its scope: "Standardization of terminology, methods of test and specifications applicable to materials, instruments, appliances and equipment used in all branches of dentistry."

When the ISO/TC106 assumed responsibility for development of international dental standards, it became critical for the Federation to remain active in standardization work and to encourage member associations of the Federation to provide support through their national standards organizations in order to ensure that the needs of the dentist were understood and protected in the development of international standards.

ISO is an international yet non-governmental organization that has as its object the development of worldwide standards which are published as ISO International Standards. The ISO members are 84 national standardization bodies.

There are eight countries in which ISO standards are mandatory: in 37 countries the ISO standards are mandatory to some extent; and in 20 countries the use of ISO standards is voluntary.

Because of the mandatory nature of ISO standards in many countries, the Federation through its Commission on Dental Products developed in 1981 a policy statement for evaluation programs for dental products including a certification program based on ISO standards.

It is imperative to the progress and development of the profession that the Federation continues to participate as an international organization in the formulation of international standards, but it is now equally essential to reinforce this participation from its member dental associations in national standardization committees for dentistry and by sponsoring representation at international meetings.

FDI Newsletter No. 148, July 1986



A HARD ACT TO FOLLOW!

The antics of a team of 16 enthusiastic dental assistants in Prince George, British Columbia, during Dental Health Month were highly effective as a means of arousing dental awareness in their community. The

assistants, in their "Plaque Attack" van, blitzed four shopping malls, and the downtown core. They were equipped with "anti-carries artillery" and portable tape decks playing the theme of the Plaque Busters.

From B.C. Dental Bulletin, July, 1986

DENTISTRY, HYGIENE AND ASSISTING PROGRAMS RECEIVE ACCREDITATION

Undergraduate programs in dentistry, dental hygiene, dental assisting and graduate and postgraduate programs in CDA recognized specialties which have been evaluated by the Canadian Dental Association are listed below. The list includes all CDA-approved programs at the time of publication. If accreditation status is desired concerning any other program not listed, please contact the CDA Council on Education and Accreditation.

The list is amended annually following the meeting of the CDA Council on Education and Accreditation each June. The list is also published annually in the October issue

of the Journal of the Canadian Dental Association.

CDA Accredited Dental Programs

Alberta: Faculty of Dentistry, University of Alberta, Edmonton;

British Columbia: Faculty of Dentistry, University of British Columbia, Vancouver;

Manitoba: Faculty of Dentistry, University of Manitoba, Winnipeg;

Nova Scotia: Faculty of Dentistry, Dalhousie University, Halifax;

Ontario: Faculty of Dentistry, University of Western Ontario, London, Ontario; Faculty of Dentistry, University of Toronto, Toronto;

Quebec: Faculty of Dentistry, McGill University, Montreal;
Faculté de médecine dentaire, Université de Montréal, Montréal;
L'École de médecine dentaire, Université Laval, Ste-Foy, Québec;

Saskatchewan: College of Dentistry, University of Saskatchewan, Saskatoon.

CDA Accredited Dental Assisting/Dental Hygiene Programs in Canada

Algonquin College of Applied Arts & Technology

Nepean, Ontario

Dental Assisting/Dental Hygiene (English & French Program)

Cambrian College of Applied Arts & Technology

Sudbury, Ontario

Dental Assisting/Dental Hygiene

Canadian Forces Dental Services School C.F.B. Borden, Ontario

Dental Assisting/Dental Hygiene

Canadore College of Applied Arts & Technology

North Bay, Ontario

Dental Assisting/Dental Hygiene

College of New Caledonia

Prince George, B.C.

Dental Assisting

College François-Xavier Garneau Québec, Québec

Dental Hygiene

College Maisonneuve

Montreal, Quebec

Dental Hygiene

College Regional Bourgeois

St. Hyacinthe, Quebec

Dental Hygiene

Confederation College of Applied Arts & Technology

Thunder Bay, Ontario

Dental Assisting/Dental Hygiene

Dalhousie University

Faculty of Dentistry

Halifax, N.S.

Dental Hygiene

Douglas College

New Westminster, B.C.

Dental Assisting

Durham College of Applied Arts & Technology

Oshawa, Ontario

Dental Assisting/Dental Hygiene

Edouard Montpetit College

Longueuil, Quebec

Dental Hygiene

Fanshawe College of Applied Arts & Technology

London, Ontario

Dental Assisting/Dental Hygiene

George Brown College of Applied Arts & Technology

Toronto, Ontario

Dental Assisting/Dental Hygiene

Georgian College of Applied Arts & Technology

Orillia, Ontario

Dental Assisting/Dental Hygiene

Holland College

Charlottetown, P.E.I.

Dental Assisting

John Abbott College

Ste Anne de Bellevue, Quebec

Dental Hygiene

Keewatin Community College

The Pas, Manitoba

Dental Assisting

Kelsey Institute of Applied Arts & Sciences Saskatoon, Sask.

Dental Assisting

Malaspina College

Nanaimo, B.C.

Dental Assisting

University of Manitoba

Faculty of Dentistry

Winnipeg, Manitoba

Dental Hygiene

Niagara College of Applied Arts & Technology

Welland, Ontario

Dental Assisting/Dental Hygiene

Northern Alberta Institute of Technology Edmonton, Alberta

Dental Assisting

Nova Scotia Institute of Technology

Halifax, N.S.

Dental Assisting

Okanagan Community College

Kelowna, B.C.

Dental Assisting

Open Learning Institute

Richmond, B.C.

Dental Assisting

Red River Community College

Winnipeg, Manitoba

Dental Assisting

St. Clair College of Applied Arts & Technology

Windsor, Ontario

Dental Assisting/Dental Hygiene

Seneca College, Willowdale, Ontario

Dental Assisting/Dental Hygiene

Southern Alberta Institute of Technology Calgary, Alberta

Dental Assisting

University of Alberta, Edmonton, Alberta

Dental Hygiene

Vancouver Community College

Vancouver, B.C.

Dental Assisting/Dental Hygiene

Wascana Institute, Regina, Sask.

Dental Assisting

DULUTH DENTIST NAMED PRESIDENT OF AGD

Dr. Robert G. Ryan of Duluth, Minnesota, was installed as President of the Academy of General Dentistry at the 134th annual meeting in Philadelphia.

Edward D. Barrett, DDS, of Rochester, Michigan, is the President-elect, John C. Brown, DDS, of Claremont, California, is the new Vice-President and Henry W. Finger, DDS, of Medford, New Jersey, is Treasurer.

Honors awarded

Harvey Levy, DMD, of Frederick, Maryland, received the Academy's Humanitarian Award for his extensive work with handicapped children. Dr. Levy serves as a dentist to the Maryland School for the Deaf and does oral health presentations in sign language.

Former chairman emeritus of Dentsply International, Henry M. Thornton, received AGD's Honorary Fellowship Award. Among Mr. Thornton's many notable achievements was the first comprehensive dental health care program, which he pioneered and which covered 3,500 Dentsply employees in 1959. He and his firm have also made major contributions to dental education in Canada, the United States and Britain.

The new president

Dr. Robert G. Ryan has served in many AGD offices, including vice-president, national director of AGD Region 10 (including Iowa, Nebraska, North and South Dakota, and Minnesota); chairman of the budget, finance and publication committees, and representative to AGD's House of Delegates.

A 1969 graduate of the University of Minnesota School of Dentistry, Dr. Ryan is a partner in Lake Superior Dental Associates and is Dental Director at the Benedictine Health Center. He has maintained a general practice in Duluth since 1970.

President-elect Dr. Edward D. Barrett will automatically succeed to the office of President in 1987. He is a past national director of AGD Region 9, encompassing Michigan and Wisconsin. A 1954 graduate of the University of Detroit School of Dentistry, Dr. Barrett is director of Continuing Education and Alumni Relations at that School.

Vice-president John C. Brown is a graduate of the University of Southern California School of Dentistry at Los Angeles (1961). He has served in various positions with the Southern California AGD. He is co-director of the Orthognathic Seminar at the University of Southern California and has a private practice with his son in Claremont, California.

YOUR IMAGE: ABRASIVE OR POLISHED?

by Cuspid

While the dental profession generally scores high in public esteem, with one British study of prestige placing dentists sixth after medical doctors, lawyers, university lecturers, research physicists and company directors . . . it does have a couple of image problems that are not of its own making and over which it has little control.

Perhaps emboldened by being a member of a higher-prestige-than-thou profession, university lecturer at Israel's Ben Gurion University, Robert Cohen, PhD, has said that "one of the major problems confronting the dental profession in many modern societies is that large segments of the population regard dental health as non-essential. They do not view dental health as integral to overall good health."

Cohen contends that, because of this, dentistry tends to be evaluated in terms of the personal experience of the respondent with the dentist, rather than the respondent's perception of the importance of the dentist's work — or his skills in undertaking it. He quotes a study of the public view of dentists and the practice of dentistry, which found that the most frequently mentioned criteria in assessing the dentist were: the quality of care provided, the personality of the dentist and the dentist's ability to interact with patients as well as to provide care with a minimum of pain.

Now, those considerations have little to do with professional competence . . . nor, I believe, does another factor that may contribute to the profession's image — the dentist's staff. Dentists are often unwillingly cocooned by sycophants — employees who manage to give the public an impression of dental practice quite different from that which the dentist would want to project. Receptionists and other employees, for example, are often brusque and unhelpful to patients, seeing themselves as picture hangers for the Healing Art, custodians of the dental practice and defenders of its practitioners.

How do you polish your image? It would be easy to say bring on the PR men and the image makers, but that is merely a cosmetic approach. Dentists should encourage public knowledge about the services they provide, liaise with politicians in shaping future dental services and work in the schools in an effort to take a Jesuitical approach towards good dental health — and preventive measures. It is in this proactive approach to image that the best opportunities lie. In an article titled "A Newspaperman Looks at the Dentist's Image" (*JADA* 66-303), G.A. Boissonneault noted that "deserved or not, dentists have become known as a group who do nothing but practise dentistry. In the public eye they don't provide leadership, they don't support community activities with either time or money"

So it's not only in following the standard dentistry dictum — 'inform before you perform' — in improving communication with your patient, one on one; it is also in communicating with the wider public about the undoubted importance of dental health to general well-being — and about your role in protecting and fostering such well-being.

There's no doubt that, with more new magazines dealing with health appearing in the last few years than those dealing with sex and/or science fiction combined, the public is ready to hear from dentists. It is ready to hear about the dramatic changes taking place in the technique and delivery of dental care; it is ready to hear about prevention, about painless dentistry, about the abrasivity of toothpastes, about the oral hazards of tobacco, about dental phobia . . . and about a host of other items.

In an article in *Harper's* magazine (March, 1982), titled "The Secret Lives of Dentists", there appears the contention that dentists are drudges "like barbers, but without the folksy panache", and that dental offices look like "futuristic beauty parlours", that dentists' uniforms "look like bowling shirts", and that dentists' fingers "taste like soap". No wonder the American Dental Association characterized the article as "a wretched overdose of negativism".

Yet it's not enough to take the view that they can say what they like about me so long as they get my name right. With the public hungry for accurate health information, and with you, the dentist, being ideally positioned to propound that information so far as dental health is concerned, the time has never been riper to develop an image that is polished to a high gloss.

And, who knows? Maybe in the next study ranking professions according to public esteem, dentists will improve on that sixth position. Not that sixth is bad: Cuspid toils in the profession of journalism, which invariably scores somewhere down there with used car salesmen in the public's estimation.



Front Page of Volume I, No. 1 of the periodical magazine, "Montreal Dental Technician," from January 1931, the official publication of the Montreal Study Club of Dental Technicians.

A COMMEMORATIVE ANNIVERSARY

THE FOUNDATION OF THE "MONTREAL STUDY CLUB OF DENTAL TECHNICIANS"

Oskar Sykora,
CDT, MA, DDS, PhD

Introduction

In 1986, the Montreal Study Club of Dental Technicians celebrates its 60th anniversary. This Study Club is believed to be the first organized dental technicians study club in Canada. The author of this article, Dr. Oskar Sykora, besides holding a degree in dentistry, is also a certified dental technician. As a longtime member of the Montreal Study Club of Dental Technicians, Dr. Sykora said in a letter to the *Journal* that the study club was "dedicated to disseminating the art and science of dental technology to technicians and dentists alike." The formation of the study club was a unique endeavour when it was undertaken in 1926 and an active role was played in its formation by many members of the Faculty of Dentistry, McGill University. Among the early founders was a prominent dentist, Dr. George Cameron. The help of McGill faculty members at the time, and their continued support helped "to raise the level of dental health education in this country" said Dr. Sykora.

Sixty years ago, an idea was born in Montreal to form an organization which would promote better quality dental technology education in Quebec. The credit for this must be given to Mr. E.A. Bulley, a prominent dental technician, following conversations he had with another dental technician, Mr. Russell Copeman and with



Charter Members of the Montreal Study Club of Dental Technicians.

Dr. George Cameron. Dr. Cameron was a renowned Montreal dentist who studied with Dr. G.V. Black.

Upon returning to Montreal from Chicago, Dr. Cameron joined the staff of McGill University, Faculty of Dentistry, as a professor of Prosthetic Dentistry and Metallurgy and continued as Head of Prosthetics until 1934. He strongly encouraged Mr. Bulley and Mr. Copeman to pursue their idea.

Consequently, an organizing meeting was held at the Mount Royal Hotel in Montreal on the 29th of April 1926; Mr. E.A. Bulley was elected as President, Mr. R. Copeman, Secretary, Mr. A.B. Bartholomew, First Vice President, and Mr. A.C. Orr, Second Vice President. Mr. A.C. Orr, a very accomplished Scottish-born technician, later became the first dental technician to supervise the pre-clinical dental laboratory at the Faculty of Dentistry, McGill University. He would remain there, with a brief intermission, until his retirement in 1961.

Another meeting was held in May, 1926. At this meeting the By-Laws were incorporated, the name of the club was decided, and also, a definite scientific program. Thus, what is believed to be the first organized dental technicians Study Club dedicated wholly to dissemination of the art and science of dental technology in Canada, was born. (Fig. 2).

The Montreal Study Club of Dental Technicians now became an accomplished fact and started to play a rich educational role for Montreal and the whole Province of Quebec. At its third meeting, the first clinic on the Hamau Articulator was given by Dr. G. Cameron, professor and chairman of Prosthetic Dentistry at McGill. Other outstanding clinicians from all over the continent followed his footsteps and were invited

to the Study Club meetings, irrespective of whether they were dentists or dental technicians. Dental manufacturers were not overlooked and presented many informative and constructive clinics, both to the members of the Study Club as well as to the members of the dental profession who were in attendance. It is of interest to note that

the need for better communication between the dental technicians and the dental profession, was recognized early, and many meetings of the Montreal Study Club of Dental Technicians became open to dentists; many members of the dental profession were in regular attendance. This was quite a revolutionary idea sixty years ago!

Another innovative feature of the Study Club has been the encouragement given to its members to present clinics at their regular meetings. This feature was also initiated in 1926. In the same year the Montreal Dental Club extended an invitation to the members of the Montreal Study Club of Dental Technicians to attend the annual Fall Clinics. Up to this time no dental technicians were invited to attend this dental convention in Montreal.

The well known Montreal dentist Dr. W.C. Bushell who, in 1925, joined the McGill dental faculty as a clinical demonstrator in fixed prosthodontics and rose to the rank of Professor of Prosthetic Dentistry, and Professor Alfred Stansfield, Metallurgist at McGill University, were other local clinicians of renown who contributed in the first and second year to the educational activities of the Study Club. These clinics were on "The Casting of Fixed Bridges" and on "The Metals used in Dentistry" respectively.

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	Unit values as at	
	August 29, 1986	July 28, 1986
Fixed Income Fund	54.15437	53.24317
Common Stock Fund	120.69453	117.83108
Money Market Fund	35.55987	35.33760
Balanced Fund	22.67799	22.15451

Interest rates:

Guaranteed Fund

Term	*Interest rates as at	
	August 29, 1986	July 28, 1986
1 yr	8.50%	8.55%
2 yr	8.85%	8.90%
3 yr	9.50%	9.45%
4 yr	9.65%	9.65%
5 yr	10.10%	10.15%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

August 29, 1986	July 28, 1986
\$62,605,259	\$62,154,332

For further information:

Write: Canadian Dental Service Plans Inc.
Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada and Ontario Area Code 807 only	1-800-268-5418
Quebec and Ontario, (except Area Code 807)	1-800-268-3411
Metro Toronto Area	497-7117

Mr. Samuel Supplee (of "Supplee Attachments" fame) in 1927 gave a clinic where, for the first time, dentists were formally invited to participate. More than two hundred came, a number which was claimed in an article at the time to be the largest number of dentists ever gathered together until that time in the Province of Quebec to listen to a clinician.

Clinicians such as Dr. W. Suter of the Dentists Supply Co. (today's DENTSPLY) spoke on "Occlusion", Dr. D.P. Mowry, Dean, Faculty of Dentistry, McGill, ("The Licensing of Dental Technicians"), Dr. E.T. Bourke ("Roach Bar Clasps") and others came to contribute their share of knowledge.

After four years in existence, the Montreal Study Club of Dental Technicians achieved a membership of 44 members, of whom almost half were French speaking; their most prominent member has been M.G. Poitras.

In 1948, another first in Canadian dental health education, had been achieved by the Montreal Study Club of Dental Technicians. On October 6, a letter was mailed to the Secretary-Treasurer, M. Paul Phénix. It contained the by-laws of the newly formed "Junior Montreal Study Club des étudiants en Technologie dentaire." A truly unique, bilingual title so typical for the Province of Quebec in the late forties. On behalf of the students, it was signed by their representative, Jean Pierre Côté, who later became the Lieutenant Governor of the Province of Quebec.

Of final interest is to note that on January 1931, Volume I, No. 1, the Montreal Study Club of Dental Technicians started to publish its own official journal. (Fig. 1). Contributing editors were both technicians such as Mr. George L. Roth and dentists, many associated with the Faculty of Dentistry at McGill, including Drs. W.C. Bushell, George S. Cameron, F.G. Henry, and A.L. Walsh. Our own Canadian Dental Association's Journal, Volume I, No. 1, dates only from January 1935!

The latest guidelines established by the Fédération Dentaire Internationale on the "Working Relationship between the Dentist and Dental Technician" states among other items that "continuing education courses are necessary as technology develops and technicians, equally with dentists, have an obligation to improve their capabilities as technicians."

The Montreal Study Club of Dental Technicians achieved this goal sixty years ago.

DR. SKYORA, as a certified dental technician, was a member of the Montreal Study Club of Dental Technicians. He became an active participant and gave numerous clinics at their scientific meetings. He kept his membership in it as a dentist and Chairman of Prosthetics at McGill until his move to Halifax, Nova Scotia, in 1972.

ARE YOU WILLING TO BEAT CANCER?

Of course you are. We all are. But it takes more than wishful thinking. It takes money.

Only two-thirds of the Canadian Cancer Society's total costs can be met by our annual fund-raising campaign. We need bequests and other sources of income for the remaining third.

That's why we're asking you to please insert this one simple sentence in your will: "I give to the Canadian Cancer Society the sum of _____ dollars."

If you help us, expensive research programs can be continued and more can be initiated.

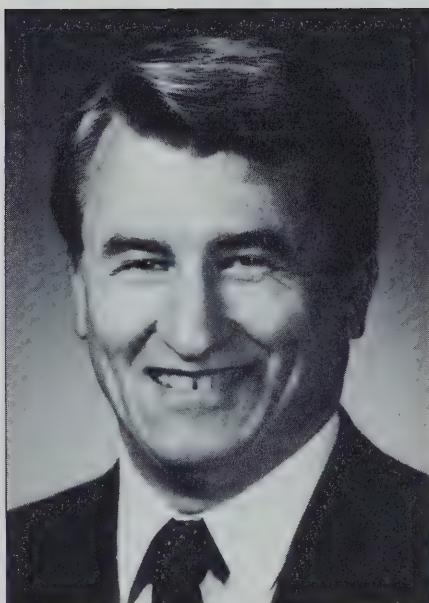
The magic word is 'you.' If you're willing, together we can beat it.

Canadian Cancer Society
CAN CANCER BE BEATEN? YOU BET YOUR LIFE IT CAN.

An editorial note in the Academy of General Dentistry's magazine "Impact" (May 1986) suggests that, in place of the rather commonplace framed prints adorning the walls of many dental offices, dentists could become "more innovative in what they attach to the walls of their waiting rooms." Many dentists, are now "hanging the original work of local artists," the article advises.

The walls, the editor states, could provide a "rotating gallery" for the patients and the office staff to admire. The practice would make the waiting rooms always look "fresh and different."

After the artists have been contacted, and works are made available, it is suggested that a "brief biographical sketch of the artist should be posted in the office", to add further interest to the display and recognize some of the talent of the community, the writer suggested.



Dr. Edward Chesko

Edward Chesko, DMD, FRCD(C), was elected President of the Canadian Academy of Periodontology at that body's 1986 annual meeting in Halifax.

Dr. Chesko graduated from the University of Manitoba (DMD) in 1964 and subsequently attended Boston University, where he received his MS Certificate, in 1972.

A Fellow of the Royal College of Dentists of Canada, Dr. Chesko has been active in organized dentistry since 1972.

He maintains a full-time periodontal practice in West Vancouver and is a part-time instructor in Periodontics in the Faculty of Dentistry, University of British Columbia.

Apples serve as excellent toothbrushes.

The Chief of Oral Surgery at St. Joseph's Hospital, Chicago, has recently pointed out that "an apple is a natural toothbrush."

Another medical authority has noted that "every time you take a bite of an apple, it

cleans from the top of the tooth down to the gums." Patients under their care are being advised to eat more apples, celery and other fiber foods — in addition to normal brushing and flossing practices.

In most of this country's major cities, children born in Canada are enjoying good dental health. This is not true, however, of those born in other countries, who have emigrated with their families to Canada.

This situation has caught the attention of Toronto's health department, and in particular, those who administer that city's free dental health program.

The department now wishes to move the program out of the schools and into the community. The proposed change, slated for September of 1987, would improve the service and reduce the budget, officials claim.

Fluoridation of Toronto's drinking water, which began in 1963 and growing public awareness of the need for good dental health have caused a marked decrease in dental caries among children in many areas of the city.

However, the department notes, for those children born outside of Canada, the incidence of dental caries appears to be increasing.

In recent years, Toronto has attracted high percentages of the total number of immigrants to Canada.

The Ontario Dental Association is extending an invitation to all interested dental practitioners or groups of dental practitioners to prepare a table clinic or mini-clinic for presentation at the next ODA Spring Meeting. The meeting will take place in May 10-13, 1987 in the Sheraton Centre in Toronto.

A mini-clinic is limited to a 40-minute presentation, while a Table Clinic is shorter — a presentation that can be made in



15 minutes. There are 27 places available for mini-clinics and 24 places available for table clinics.

The deadline for applications is November 30, 1986 and information should be sent to ODA Headquarters, 234 St. George St. Toronto, Ont. M5R 2P1, Attention: Diana Thorneycroft.

The following information should be provided in the submission: whether the presentation is going to be a mini or a table clinic, exact title of the presentation, a 50-word synopsis of the presentation, a 50-word biography of the presenter and preference of presentation date and time.

Mini clinics will be held on May 11, 1987 from 2:30 to 4:30 pm and May 12, 1987 from 9:00 am to 11:15 am and 2:30 pm to 4:30 pm. Table clinics will be held May 11 and May 12, 1987 from 2:30 to 4:30 pm.

This year's Barnabus Day Awards from the Ontario Dental Association honored two significant contributors to the ODA.

Dr. Nick Mancini, Chairman of CDA's Board of Governors, as well as Chairman of the ODA Board for 20 years, received one of the two Awards at the recent ODA Board meeting. The other Barnabus Day Award went to Ann Mackenzie, a long-time participant in the Spouses Program at ODA Conventions.

Dr. Mancini, who recently also took the position of Chairman of the Board for CDSPI, is in private practice in Hamilton, Ontario. He is a Fellow of the International College of Dentists and a member of the Pierre Fauchard Academy.

Mrs. Mackenzie has been with the ODA spouses committee for the conventions



Dr. Nick Mancini

since 1966 and has served the spouses programs in various capacities.

The Barnabus Day Award is presented to recognize those who have given outstanding service to the profession of dentistry, either for a single outstanding contribution or for sustained service to the profession for not less than 20 years.

Two prominent Ontario dentists recently received the Ontario Dental Association's Service Award.

Brigadier General James Wright, who retired recently as Director General of Dental Services for the Canadian Forces, and Dr. David Sage, received the awards at a recent ODA Board meeting.

Dr. Wright, a member of CDA's Executive Council for several years, is from Ottawa. Dr. Sage resides in Woodstock, Ontario.

Both received their awards for "outstanding contributions to the dental profession at a component society, specialty section or provincial level."

Dr. Sage was a member of the ODA's Dental Practice Advisory Committee from 1978 to 1986. He is currently a member of CDA's Council on Health Care.

The Faculty of Dentistry at the University of British Columbia has reorganized its six departments into three. These are oral biology, clinical dental sciences, and oral medical and surgical sciences.

The change replaced the previous departments of oral biology, oral medicine, oral and maxillofacial surgery, orthodontics, preventive and community dentistry and restorative dentistry.

Included in the new oral biology department are biomaterials, oral anatomy, oral biochemistry, oral immunology, oral microbiology and oral physiology.

Clinical dental sciences will now consist of ethics, jurisprudence and practice management, operative dentistry, orthodontics, pedodontics, periodontics, prosthodontics, preventive and community dentistry.

Oral medical and surgical sciences now include endodontics, oral diagnosis, oral and maxillofacial surgery, oral medicine, oral pathology, oral radiology, pain and anxiety.

A Canadian dental hygienist has been named organizing chairman for an international hygienists' symposium.

Dale Scanlan, of the dental department of the Children's Hospital of Eastern Ontario, in Ottawa, was appointed to the post by the International Dental Hygienists' Federation to organize the 11th International Symposium on Dental Hygiene, to be held at the Westin Hotel in Ottawa, June 30 - July 1, 1989.



Dale Scanlan

At the most recent Symposium, 371 delegates attended from 22 countries.

Ten countries are represented on the Board of the International Dental Hygienists' Federation.

Dr. Marcia Boyd is the new President of the Association of Canadian Faculties of Dentistry.

Elected at the recent ACFD annual meeting, Dr. Boyd will serve for 1986-87. A member of the Faculty of Dentistry, University of British Columbia, Dr. Boyd received her DDS degree from the University of Alberta in 1969. She also holds an MA from the University of British Columbia.

A longtime member of the Canadian Den-



Dr. Marcia Boyd

tal Association, Dr. Boyd has served on CDA's Council on Education and Accreditation for several years. She is Chairman of the Dental Admission Test Committee and maintains an active interest in the evaluation of clinical performance, aptitude and personality testing of dental applicants and students and the dental school curriculum.

She resides in Vancouver, with her husband Ron.

The Canadian Long Term Care Association recently elected a new President.

Mr. Jack King, Q.C. is currently President of the Forest Grove Care Centre, a 225-bed, accredited, intermediate care centre in Calgary, Alberta.

He is also a member of the Law Society of Alberta and of the Canadian Bar Association. Mr. King is also a member of the Canadian College of Health Service Executives and the American College of Nursing Home Administrators. He is also the co-founder of Gerontion, a Canadian Review of Geriatric Care and a Director of the National Health Energy Task Force.

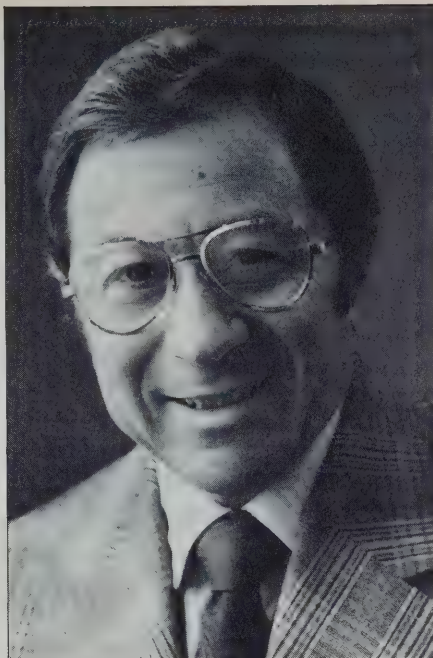
The Canadian Long Term Care Association is a federation of 13 provincial long term care associations.

A news story in a Lansing, Michigan, newspaper, *Monday Morning Report*, reprinted in The Journal, Addiction Research Foundation, describes a new approach to soothe anxiety in dental patients. Southern California dentists are attempting to calm those anxious patients by serving free wine in their waiting rooms. The move, the newspaper states, is an attempt to attract more patients because of a declining workload.

One dentist in Marin, California, Dr. Joseph Armel, is reported to have tagged his practice as "Joe's Bar and Drill."

The Canadian Academy of Prosthodontics and the Association of Prosthodontists of Canada held a very successful joint scientific meeting in Vancouver, British Columbia on June 27th-28th, 1986. This meeting was titled "Prosthodontics 86" and featured eminent clinicians from Canada and the United States as well as Dr. Geoffrey Longson from London, England. Dr. Longson's presentation was titled "Aetiology and Treatment of Gross Attrition". This well received scientific program was organized by Dr. Dennis Nimchuk, Vancouver and Dr. Don Gratton, London, Ontario.

Special events in association with this meeting were capably arranged by Mrs. Maxine Gelfant, Vancouver. A highlight of these events was the Grand Gala at the Pan



Dr. Harry L. Gelfant, President, Canadian Academy of Prosthodontics.



Dr. Robert Hoar, President, Association of Prosthodontists of Canada

Pacific Hotel at which the past president of A.P.C., Dr. W. Brock Love, Winnipeg, and the past president of C.A.P., Dr. E.J. Rajczak, Hamilton, acknowledged those who contributed to making this meeting an outstanding success.

In conjunction with this session the Canadian Academy of Prosthodontics installed Dr. Harry L. Gelfant, Vancouver, as their President for the coming year. The Association of Prosthodontists of Canada elected Dr. Robert E. Hoar, Halifax as their president for 1986-87.

The American Dental Association has voiced its opposition to a United States government proposal that would allow direct payments to dental auxiliaries under the Federal Employees Health Benefits Program.

The ADA statement pointed out that "if carried to its logical conclusion, such a reimbursement mechanism could lead to two levels of care — one provided by dentists, the other by unsupervised practising dental hygienists."

Officials of the ADA and the American Medical Association were invited by the chairman of a hearing to meet with federal officials to develop a compromise payment plan.

Last January, President Ronald Reagan vetoed proposed legislation that would have given direct payments to nurses and nurse-midwives. The President reasoned that it would be a "major departure from established health care practice."

It would appear that Florida has never been a backward area of this continent — even in 5510 B.C.

The resort areas hadn't been developed, but the ancient Indian tribes who lived there apparently practised medicine and dentistry to fight gum disease, according to scientists who have been examining the remains of people who lived near Titusville, Florida, 7,500 years ago.

Archeologists and anthropologists found small grooves between many of the Indians' molars. They suggest that tiny wooden toothpicks were used to remove food particles or pockets of infection from the gumline. David Dickel of Florida State University observed that "the enamel on the teeth is quite tough, so they must have used the probes quite vigorously to make the grooves."

Researchers were also impressed when they studied remains of Indians who had broken bones. The fractures rarely showed any signs of infection, a common complication without proper medical treatment.

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DENTAL HEALTH
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CANADIAN DENTAL ASSOCIATION

DENTAL AWARENESS PROGRAM UPDATE

What Every Adult Needs to Know. . .

By now you've probably already read our new foldout publication, *What Every Adult Needs To Know About Dental Health*. If not, you'll soon be seeing it; it's out and being distributed through pharmacies and by direct mail to millions of people across the country. As the title promises, it offers practical dental health knowledge and advice, presented in a fresh, contemporary, and compelling style. More than just an information pamphlet, it's "intended to change the way you think about your dental health. . . and what you do about it."

Every Adult is designed as a friendly challenge. It looks like a conventional brochure, but instead it's folded into theme sections. With each successive unfolding, a new dental health concept is revealed — expressed with a new graphic treatment.

"There are only a few things you have to know, a few things you have to do, to keep your teeth strong and healthy for a lifetime," the opening remarks promise. "This pamphlet can help you make the adult choice." The next unfolding presents "It Happened to Harry" — a cautionary cartoon fable about the perils of periodontal disease. Following that, "Some Simple, Straight-forward, Very Useful Advice" presents key points on several topics — perspectives on the problem, its symptoms and consequences; a new focus on the sulcus; tips on cleaning; practical suggestions for changing habits; a look at the partnership between dentist and patient and at costs and planning.

We believe this publication really *will* help change how Canadians think about their dental health. The information is essential, clear and straightforward; the pamphlet is packed with full-colour illustrations and graphs. Our thanks to Oral-B for making it possible.

Dental Health Month '87

Dental Health Months '85 and '86 were tough acts to follow. At the provincial and community levels, excitement and activity

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CANADIAN DENTAL ASSOCIATION

reached fever pitch. Media interest has been unprecedented — over the two years, it increased by a phenomenal 1,000 per cent.

Undaunted by success, we're planning even more for the coming year: More and better national programs and resources on a national level. An even stronger push for media support. And a new programming concept to put Canadians on the *Good for Life* action track. In more detail:

- **Faster track.** As always, April is Dental Health Month; but this year, planning is well ahead of itself. This means more time for provincial associations and local societies — so they can plan and organize more and better regional activities. Resource materials will be available much earlier. We'll be taking orders from provincial associations in 1986, and we'll deliver them early in the new year.

- **Wider involvement.** This fall, DAP goes on the move — touring the country to work

with each provincial association on coordinating national and provincial awareness programming. What's more, hygienists are keen on more direct involvement in Dental Health Month; discussion is currently underway with the Canadian Dental Hygienists' Association.

- **The Good for Life Pledge.** This year we'll be carrying the *Good for Life* concept one step further — by urging Canadians to **make the Good for Life pledge**. Here's what this exciting new theme will do:

- Encourage individuals across Canada to make an explicit commitment to keeping their dental health *Good for Life*.
- Shift the focus of Dental Health Month programming from simple awareness into action.
- Add a new, exciting twist to various established and successful local activities — toothbrush exchanges, mall displays, etc. .
- Support the Dental Awareness Program's overall purpose: to get Canadians to recognize the lifelong, personal aspect of dental health.

- **New resources.** Last year, DAP produced a kit of planning and promotional materials — to work not only for Dental Health Month but also throughout the year and for years to come.

This year, we'll be creating new resources to supplement the existing materials. Many of these will be designed specifically with *The Good for Life Commitment* in mind. **There will be more posters, more buttons, more stickers; and, for dental offices and communities, a special Good for Life Commitment certificate.**

Once again, of course, we'll send Dental Health Month kits to each individual member for in-office promotion.

- **Sponsored national projects.** For Dental Health Month '85 and '86, National Dental Health Checkups were distributed to millions of Canadians as supplements to *Maclean's* and *Chatelaine* magazines. Special promotions were also mounted in pharmacies from coast to coast. This year, we're planning new projects on a similar scale — watch for details in upcoming DAP Updates.

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- Prosthetic Stabilization
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Letters

JOURNAL GETS THANKS FROM INTERPOL

I wish to take this opportunity to thank you for your help in the matter of the amnesiac, known as Bob Hunter (JCDA, Vol. 52, No. 4, 1986). Although it has not been possible to ascertain Hunter's true identity, the investigation is continuing.

The publication of Hunter's case in your Journal was very much appreciated by the Netherlands police as well as the R.C.M.P.

*D. Chiarot,
Officer in charge, Interpol (NCB)*

INNOVATIONS NOT SO NEW

It was interesting to read of the 'Innovations to make visits to the dentist less stressful' (Briefly June 1986). Doctors Sonntag and Ewaschko are to be congratulated for their efforts in this direction. But as a matter of record, they are at least some twenty-two years too late in their efforts.

You are possibly familiar with the work of Doctor Howard T. Oliver in orthodontics and, in particular his innovations in the field of treatment of cleft palate cases — innovations that have resulted in his delivering

papers and developing courses not only here in North America, but in South America, Europe, Australasia and even netting him an invitation to China.

Doctor Oliver is one of the most innovative people whom it has been my pleasure to know during the past fifty years, in dentistry, in orthodontics and in his general approach to life. It is more than a little interesting to see that so many of his contributions to our profession are now being 'rediscovered' including TV usage in the office.

With best regards and compliments to the Journal staff for the fine Journal you are now producing.

*Dr. Wallace F. Walford
Hudson, Quebec*

INSURANCE MATTER RESOLVED

Page 473 of the June issue of the Journal carried a letter from Dr. D. Mossop, of St. Catharines, Ontario, in which he states, and I quote, "I still cannot find a company, including CDIP, who will insure me." Readers of the Journal may be interested in knowing that in May 1986 the Imperial Life, which is the insurer for

Long Term Disability insurance under the Canadian Dentists' Insurance Program (CDIP) did approve an application from Dr. Mossop for Long Term Disability insurance.

It would be appreciated if you would inform your membership accordingly.

*Cyril J. Gallant, CLU
Director of Plans
Canadian Dental Service Plans Inc.
Willowdale, Ont.*

EAR DEFENDERS TIP

I've recently discovered that after 35 years of coping with the banshee wail of my air-drill, my hearing ability is now only 64% of normal. I now tell my friends and relatives to speak up when they are talking to a member of the "eh? team".

Bilateral intra-auricular amplifiers seem to be the only solution, and the more you try to keep up with the conversations around you, the more you spend on batteries. It's no fun at all.

It may be too late for some, but have an audiogram done, and wear ear-defenders while operating high-speed drills.

*Dr. Dennis Bullen (Retired)
Comox, British Columbia*

OBITUARIES/NÉCROLOGIES

CHURCH, E.L.: A 1981 graduate of the University of Saskatchewan, Dr. Church died accidentally on June 7, 1986. He had practised dentistry in Meadowlake, Saskatchewan, and was born in 1957.

COLLIER, R.G. "GEOF": A graduate of the University of Alberta in 1961, Dr. Collier was born in 1935. He was a resident of Kamloops, B.C. at the time of his death.

HESS, G.V.: A graduate of the University of Toronto in 1974, Dr. Hess conducted a practice in Windsor, Ontario, until the time of his death.

JUTRAS, P.-P.: Né en 1925 et diplômé de l'Université de Montréal, en 1953, le Dr Jutras habitait à Outremont au moment de son décès.

MCCAFFERY, J.M.: A Life Member of the Canadian Dental Association, Dr. McCaffery was a graduate of the University of Toronto in 1927. He was

a resident of Calgary, Alberta, at the time of his death.

MCINTYRE, ROGER: Décédé soudainement à Montréal, à l'âge de 41 ans, le Dr McIntyre exerçait à Montréal en cabinet privé depuis l'obtention de son diplôme en 1970 à l'Université de Montréal.

SMAILL, S.S.: A graduate of McGill University in 1937, Dr. Smail was born in 1911. He was a resident of Montréal, Québec, at the time of his death.

DENTAL IMPLANTS

LES IMPLANTS DENTAIRES

1. Adell, R. and others. *Marginal tissue reactions at osseointegrated titanium fixtures (I). A 3-year longitudinal prospective study.* International Journal of Oral and Maxillofacial Surgery, v. 15, no. 1, February 1986, pp. 39-52.
 2. Adell, R. *Tissue integrated prostheses in clinical dentistry.* International Dental Journal, v. 35, no. 4, December 1985, pp. 259-265.
 3. Albrektsson, T., Jansson, T. and Lekholm, U. *Osseointegrated dental implants.* Dental Clinics of North America, v. 30, no. 1, January 1986, pp. 151-174.
 4. Ampil, J.P., Wegmann, C.S. and Gambrell, K. *Use of magnets for staple mandibular implants.* Journal of Prosthetic Dentistry, v. 55, no. 3, March 1986, pp. 367-369.
 5. Babbush, C.A. *Endosteal blade-vent implants.* Dental Clinics of North America, v. 30, no. 1, January 1986, pp. 97-115.
 6. Babbush, C.A. *ITI endosteal hollow cylinder implant systems.* Dental Clinics of North America, v. 30, no. 1, January 1986, pp. 133-149.
 7. Babbush, C.A. *Reconstruction of the edentulous mandible.* International Dental Journal, v. 35, no. 4, December 1985, pp. 266-276.
- Abstract:**
Three techniques, the subperiosteal mandibular bone plate, the mandibular staple bone plate and the titanium plasma screw implant system, used in the reconstruction of the edentulous mandible, are reviewed. The surgical and prosthetic techniques for each type of implant are described. A first attempt at gathering statistics on the results obtained with these implants is reported.
8. Babbush, C.A., Kent, J.N. and Misiek, D.J. *Titanium plasma-sprayed (TPS) screw implants for the reconstruction of the edentulous mandible.* Journal of Oral and Maxillofacial Surgery, v. 44, no. 4, April 1986, pp. 274-282.

9. Eriksson, R.A. and Adell, R. *Temperatures during drilling for the placement of implants using the osseointegration technique.* Journal of Oral and Maxillofacial Surgery, v. 44, no. 1, January 1986, pp. 4-7.
10. Finger, I.M. and Guerra, L.R. *Prosthetic considerations in reconstructive implantology.* Dental Clinics of North America, v. 30, no. 1, January 1986, pp. 69-83.
11. Grandjean, G. *Radiographie et mesures en implantologie.* Le Chirurgien Dentiste de France, v. 55, no. 308, October 10, 1985, pp. 47-51.
12. Jemt, T. and Stalblad, P.A. *The effect of chewing movements on changing mandibular complete dentures to osseointegrated overdentures.* Journal of Prosthetic Dentistry, v. 55, no. 3, March 1986, pp. 357-361.
13. Jemt, T. *Modified single and short-span restorations supported by osseointegrated fixtures in the partially edentulous jaw.* Journal of Prosthetic Dentistry, v. 55, no. 2, February 1986, pp. 243-247.
14. Kaneko, T. and others. *Acoustoelectric technique for assessing the mechanical state of the dental implant-bone interface.* Journal of Biomedical Materials Research, v. 20, no. 2, February 1986, pp. 169-176.
15. Krekeler, G. Schilli, W. and Diemer, J. *Should the exit of the artificial abutment tooth be positioned in the region of the attached gingiva?* International Journal of Oral Surgery, v. 14, no. 6, December 1985, pp. 504-508.
16. Lekholm, U. and others. *Marginal tissue reactions at osseointegrated titanium fixtures. (II) A cross-sectional retrospective study.* International Journal of Oral and Maxillofacial Surgery, v. 15, no. 1, February 1986, pp. 53-61.
17. Loos, L.G. *A fixed prosthodontic technique for mandibular osseointegrated titanium implants.* Journal of Prosthetic Dentistry, v. 55, no. 2, February 1986, pp. 232-242.
18. Parel, S.M., Branemark, P.I. and Jansson, T. *Osseointegration in maxillofacial prosthetics. Part I: Intraoral applications.* Journal of Prosthetic Dentistry, v. 55, no. 4, April 1986, pp. 490-494.

19. Pipko, D.J. and Spanko, J.E. *Pre-fabricated coping-bar patterns for the mandibular transosteal staple bone implant.* Journal of Prosthetic Dentistry, v. 55, no. 1, January 1986, pp. 92-96.
20. Salman, L. *Complete dentures and the geriatric patient: surgical considerations.* New York State Dental Journal, v. 52, no. 4, April 1986, pp. 26-28.
21. Symington, J.M. and others. *Applications of osseointegrated implants. A preliminary report on 35 cases.* Canadian Dental Association Journal, v. 52, no. 2, February 1986, pp. 139-141.

One copy of the above articles is available at no charge from the Library to all CDA members. Non-members will be charged \$5.00. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5.00 aux non-membres une copie des articles ci-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

NEW LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

1. George, James M. and others. *Stress Management for the Dental Team.* Philadelphia: Lea & Febiger, 1986. 283p. 1 copy.
2. Jankelson, Robert and Pulley, Mary Lynn. *Electromyography in Clinical Dentistry.* Seattle: Myo-tronics Research Inc., 1984. 60p. 1 copy.
3. Oberg, S. William. *Proceedings: First National Conference on Alcohol and Chemical Dependency in the Dental Profession: July 24, 1985.* Sponsored by the American Dental Association Council on Dental Practice. Chicago: American Dental Association, 1986. 52p. 1 copy.



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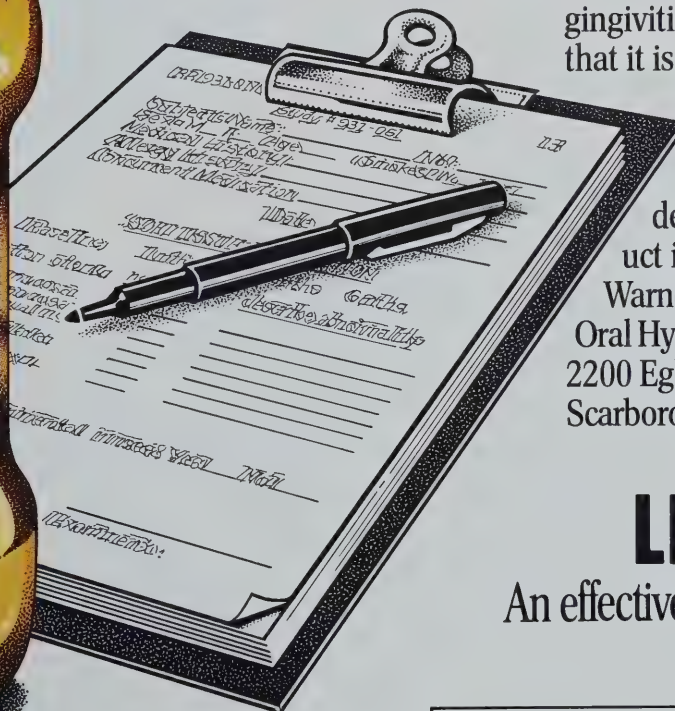
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- References: 1. LAMSTER, I., et al.: Clin. Prev. Dent., 6:12 (1983).
2. MENAKER, L. et al.: Ala. J. Med. Sci., 16:71 (1979).
3. ROSS, N.M., et al.: Warner-Lambert research report #955-0875 (1976).
4. YANKELL, S.L., et al.: Warner-Lambert research report #955-0893 (1976).

Active ingredients: Alcohol 21.9% w/v, Eucalyptol 0.091% w/v, Thymol 0.063% w/v, Menthol 0.042% w/v.

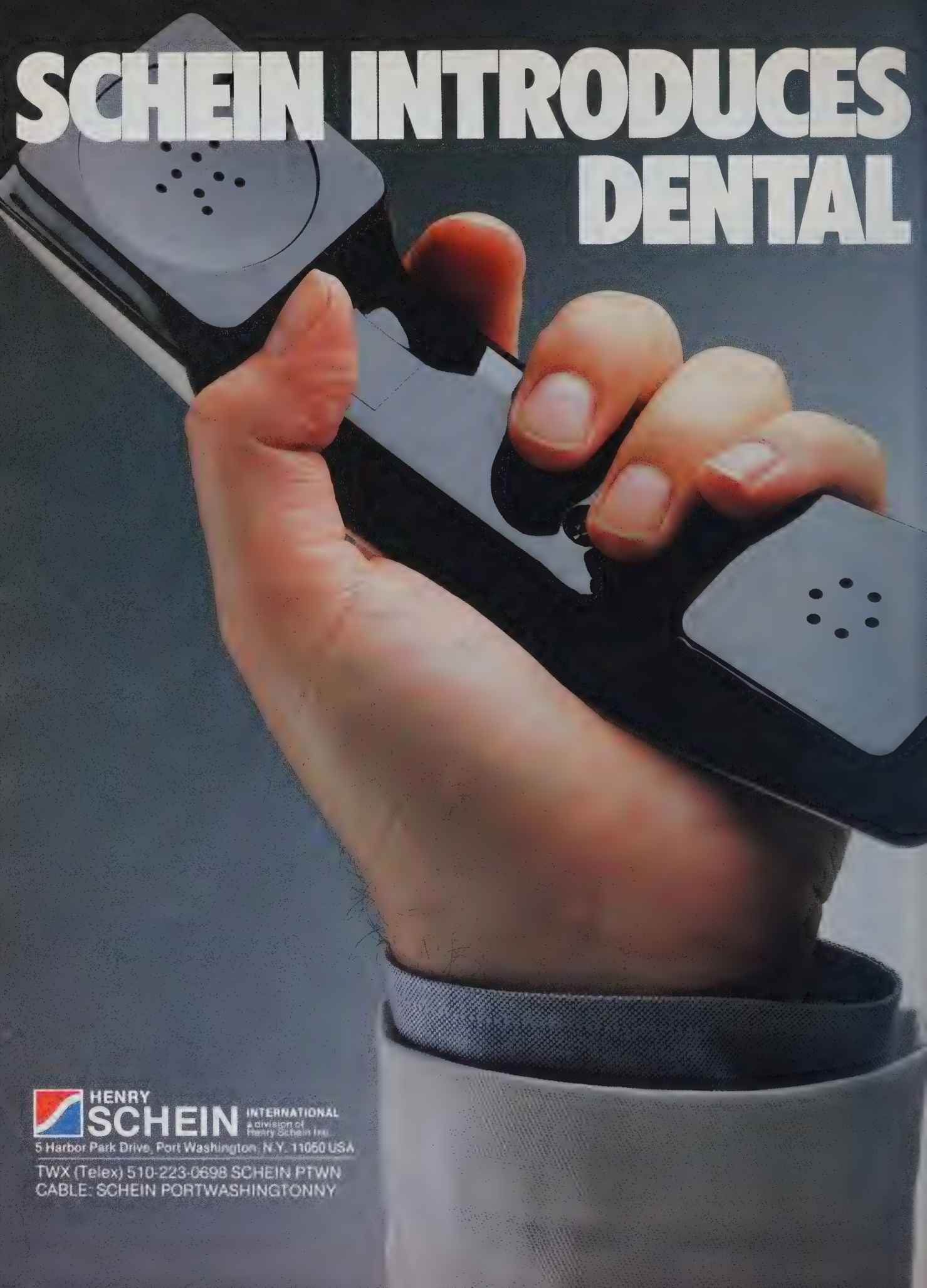
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1. Schiff, T.G.: "The effect on calculus deposits of a dentifrice containing soluble pyrophosphate and sodium fluoride: a three month clinical study." *J. Clin. Prev. Dent.*, (June, 1986).
2. Lobene, R.R.: "A clinical study of the anti-calculus effect of a dentifrice containing soluble pyrophosphate." *J. Clin. Prev. Dent.*, (June, 1986).

Book Reviews

NUTRITION IN ORAL HEALTH AND DISEASE

**Robert L. Pollack and
Edward Kravitz**

*Lea and Febiger
Philadelphia, PA., 1985
\$42.50, 483 pp.*

This book promotes itself as an essential source of reference and teaching for a broad base of health-care professionals — from dentists and dental hygienists, to dietitian-nutritionists, biochemists, physicians, nurses, sports trainers, physical and occupational therapists and others. Its primary emphasis is on the oral area as an impressive array of author-contributors trace the development of oral biology from fetal life throughout the lifecycle, relating nutrition to normal and pathologic oral tissue growth and function.

The subjects are organized in a novel fashion, as compared to more traditional texts relating dentistry and nutrition. Metabolic nutrient function is left to the end in the apparent assumption that the reader might have more detailed information from other sources. To Canadians, however, the chapter on the American Health Care Delivery system is irrelevant and could be eliminated or substituted in a subsequent Canadian edition of the book. The authors have provided many provocative and up-to-date articles on various topics such as periodontal disease, nutrition and oral medicine, diet/nutrition and cancer prevention and treatment, food faddism, drugs, alcohol and nutrition.

Especially useful in the applied nutrition section is a description of the use of an in-office computer for rapid analysis of patient nutrient intake. While many practical suggestions are made throughout, on how to incorporate nutrition counselling and nutrition education into dentistry, one wonders how realistic it is to expect dentists or other health-care professionals to perform all of the interventions suggested.

Not enough has been said of the potential

for team management of nutritional problems in the dental setting, particularly as more dietitians are now working in private practice as consultants. Also lacking is a thorough discussion of the effects of impaired mastication of food selection and utilization. Considering the number of edentulous North Americans, the problem is not a trivial one. But overall, this book is a refreshing new look at an important subject and worth having as a reference text and a teaching tool for the health-care professional.

*This book was reviewed by
Bryna Shatenstein, M.Sc. (nut), P.d.t.
Dept. of Community Dentistry
Faculty of Dentistry,
McGill University*

*Research Nutritionist
Clinic for Atrophy of the Maxillae
St. Mary's Hospital, Montreal*

PERIODONTAL INSTRUMENTATION: A CLINICAL MANUAL

**Gordon Pattison and
Anna Matsuishi Pattison**

*Reston Publishing Co. Inc.,
Reston Virginia
\$28.95 U.S., 408 pages.*

This unassuming little manual while unlikely to shake the foundations of conservative periodontia in clinical practice, is well written and has two features, among others that I believe should make it an indispensable addition to the library of the student and practitioner alike. It describes in detail, instrument, finger rest and operator positioning for optimum scaling and root planing technique and it reinforces the benefit of and method for instrument sharpening including the complex Gracey series of curettes. Now I would be surprised if there is anything in dentistry that can drive a clinician to despair faster than the thought of sharpening a kit full of dull curettes and scalers. On the other hand, NOTHING gives more pleasure than the sound and feel of a sharp curette wending its way over rough

cementum. But the use of a sharp curette with the right grip and finger rest approaches the sublime.

Students particularly will benefit from the study of information in this book — and although it is arguable, they may find it refreshing to gambol with a book that is short on theory while being long on technique and they may finally realize that periodontology, while demanding, can be immensely rewarding.

There are other good things about this manual all of which must lie in wait for the fortunate practitioner who purchases this book at a soft cover price that should not break the bank.

*This book was reviewed by
Dr. James Stakiv, who is in private practice,
limited to periodontology, in London, Ontario.*

REMOVABLE ORTHODONTIC APPLIANCES — 2nd EDITION

Graber, T.M., & Neumann B.

*W.B. Saunders Co.,
Toronto, Ont. 1984,
\$65.35, 631 pages*

This densely packed and well illustrated textbook of over 600 pages provides a most comprehensive coverage of the subject of removable orthodontic appliances. It discusses in some detail every aspect of removable therapy utilizing either "active plates" or "functional appliances". As with most major texts today, it is multiauthored, and includes contributions by outstanding clinicians and researchers on both sides of the Atlantic.

The opening chapter on the active plate contains excellent basic material, but should be considered merely as an introduction to this type of removable appliance — which requires much more extensive coverage than this all-inclusive text can allow.

Before delving into the individual functional appliances, the book provides several chapters with important information applicable to all these mechanisms, viz, the use of muscle forces, concepts of functional jaw orthopedics, cephalometric diagnosis,

functional analysis, and the taking of a construction bite. This is followed by a thorough exposé of the Andresen-Häupl activator, the first of the functional appliances, and the one upon which most of the others are based. Next there is an illuminating discussion of various modifications of this appliance as conceived by Harvold — Woodside, Herron, and others. The bionator, an outgrowth of the activator, is also very well explained, along with its numerous modifications. A chapter on the immensely popular functional regulators of Fränkel receives special emphasis. To conclude, the authors convincingly illustrate various ways in which fixed and removable appliances may be combined for the achievement of optimal results.

This text very successfully brings together the European and American concepts of orthodontics — or, more aptly, of dentofacial orthopedics. It emphasizes the importance of a proper diagnosis, of careful case selection, and of patient co-operation with these removable mechanisms. It also, more than adequately, points out the limitations of functional appliance therapy, the need for fixed appliances to properly complete many cases, and the iatrogenic potential of orthodontic treatment. However, since the book is tailored to the North American practitioner, it would be helpful if wire dimensions were given in standard measures in addition to the metric designations. Furthermore, the cephalometric tracings should all be oriented with the face to the right. It is also unfortunate that some of the chapters do not contain summaries at the end.

Laboratory techniques are discussed in varying detail at several locations throughout the book. Perhaps in some future edition, the authors might consider including a completely separate chapter devoted to the technical aspects, so that more complete instructions relative to all the appliances could be provided for the orthodontic technicians.

Since such a wide variety of concepts is presented, it is not surprising that there are some contradictory statements. Nevertheless, this textbook is a major contribution to the orthodontic literature, and is highly recommended reading for orthodontists who wish to keep abreast of the "changing world of orthodontics", and to be adequately prepared to face the "challenge of the 1980s". It is an absolute must for every generalist or pedodontist contemplating the incorporation of functional appliance therapy into his or her dental practice.

This book was reviewed by Dr. Harvey L. Levitt, an orthodontist in private practice in Montreal. Dr. Levitt also teaches at McGill University and the University of Pennsylvania.

PERSONALIZED GUIDE TO LEGAL ISSUES

Randall K. Berning, J.D.
Michael A. Johnson, J.D.

*Snyder Felmeister and Company
Cherry Hill, New Jersey*

MOSBY'S DENTAL PRACTICE MANAGEMENT SERIES #7

*C.V. Mosby Co.
Toronto, Ontario
\$21.75, Pages: 199*

The seventh volume in a series by Mosby entitled *Dental Practice Management Series* has been received with the title *Personalized Guide to Legal Issues*. In approximately two hundred pages, including references and indexes, the authors address legal implications of various aspects of dental practice with particular emphasis on the form of practices, purchasing and selling of practices, and the variety of practice arrangements and relations that may be entered into.

Personalized Guide to Legal Issues is American, and, although American and Canadian laws are both Anglo-Saxon based, different terminology is used for the various court levels and for various governmental agencies that may affect or influence dental practices in the United States. As a result, the first seven pages of chapter one are general statements regarding the law and legal system in the United States and are of limited value in Canada. However, the remaining portion of chapter one identifies potential legal issues that may be experienced by dentists wherever they practise and so are applicable to Canadian practitioners, as is the remainder of the book.

The Guide is laid out in a clear and concise fashion and is very easy to follow. Explanations of various terms are offered and these are understandable and useful. The authors perhaps tend to encourage the practitioner to over-use other professional services such as accountants and lawyers, giving the impression that the dentist is incapable of making any decision on his or her own.

This book is of particular interest in these days when practices are frequently shared or portions of practices are sold, where associates work for dentists and associates work as independent contractors and where a great variety of possibilities exist and are being tried by practitioners as to inter-professional relationships within practices. The Guide provides a very useful review of a variety of forms of practice relationships, giving pros and cons in many instances. It is for this reason that I think this is a very

worthwhile reference book for practitioners who may, during the course of their practice lifetime, find themselves embarking upon or considering a variety of practice relationships.

Of particular value, in my view, are the work sheets which accompany most of the chapters. These are extensive, with a discussion of factors involved that should be considered and a place in the margin for the practitioner to consider his or her own circumstances in relationship to the particular area under consideration. Also to be found are a variety of sample agreements and contracts concerning a number of different practice issues which may be very useful, provided the practitioner keeps in mind that they are only samples which should not be applied to any practice without consultation with legal advisors and accountants. Certainly they do serve, however, to highlight important areas for consideration by the practitioner who is contemplating a legal agreement of one sort or another.

With the shortcomings previously mentioned, that this is an American publication with somewhat different laws, (both federal and as they apply to dentistry), and different tax structuring, the book is a worthwhile read for any practitioner and may indeed be useful for practitioners to have in their library for occasional review.

*Reviewed by
Dr. G.R. Thordarson,
Registrar,
College of Dental Surgeons
of British Columbia,
Vancouver, B.C.*

"FRONTIERS OF ORAL PHYSIOLOGY, VOL. 5

Series Editors,
Y. Kawamura
D.B. Ferguson

*Steroid Hormones in Saliva,
x + 182 p, 85 fig., 12 tab hard cover,
1984.
Price U.S. \$69.00.
S. Karger AG
Basel, Switzerland
162 pages*

Developments in analytical methods have determined the pace of discovery respecting the quantitation and clinical significance of salivary constituents. Volume editor, Professor D. Ferguson, has brought together nineteen researchers to present review and original research papers from the field of endocrine physiology as these pertain to the oral fluids.

Vining and McGinley argue that the high lipid-solubility of the non-polar steroids, cortisol, oestriol, testosterone and pro-

gesterone allow their entrance into saliva via the intracellular route. Thus not dependent upon salivary flow rate the non-polar steroids closely approximate the unbound plasma levels. Walker concludes that because salivary sampling is a non-invasive technique it permits stress free sampling essential to establishing the physiological potency or otherwise of the hypothalamopituitary adrenal axis. The potential value of pain free salivary sampling in establishing the relationship between stress and oral disease and masticatory syndromes is very real.

Parallel changes in salivary and plasma hormone levels are shown to exist in a variety of endocrine dysfunctions such as Cushing's syndrome, Addison's disease and gonadal dysfunction. Price considers the pathogenesis of the latter in male and female children and shows how salivary steroid concentrations may be used to measure the success or otherwise of hormone therapy.

The place of salivary steroids in the diagnosis and treatment of the prosthetic and periodontal patient is obvious. Swift underscores this significance when he observes that it is justified to postulate that salivary hormonal levels in the adolescent is more soundly based than the measurement of plasma concentrations with its ensuing

interpretative problems. Thus maturational questions of interest to endocrinologists, pathologists and orthodontists may be unequivocally and readily answered by hormonal analysis of mixed saliva. Donaldson, Jeffcoate and Sufi exemplify the usefulness of obtaining salivary oestradiol and progesterone levels in eliciting specific phases of the ovulatory cycle, including pregnancy and dysfunctional states. Adding a timely note of caution Joshi and Sankolli warn that variations exist in oestrogen levels between salivary samples of the same subject dependent upon the gland of origin. They state that oestradiol rather than oestrogen levels are consistent and well correlated with plasma levels and is the test of choice in assessing fetoplacental function.

Nguyen et al confirm that oestriol levels in saliva offers the optimal sampling procedure in the diagnosis of fetal status. They prove that salivary lipids do not interfere with RIA of oestriol in saliva. Demonstrating the 'spiking' phenomenon of salivary progesterone in adolescents, Riad-Fahmy suggests that this may be due to the stimulation of luteinized or atretic follicles under the influence of LH/FSH interaction at puberty.

In their thorough review of salivary gonadal steroids Luisi and Franchi anti-

pate that the recently developed chemiluminescence immunoassay method will prove an even more important method in experimental and clinical studies than the radioimmunoassay techniques.

This fifth volume in the series of Frontiers of Oral Physiology is an extremely significant, timely and readable addition to the oral physiology literature. Because of its far reaching implications for almost every area of dentistry it is highly recommended to those who are interested in keeping abreast of clinically and scientifically significant advances in oral biology.

It is recognized that the subject of steroids in saliva is still in its infancy and that much more will be added to the literature in the next decade. Notwithstanding, this volume is a most valuable addition to what is already recognized as the excellent 'Frontier Series'. Its research significance is increased by its applicability to the field of clinical dentistry. It is hoped that Kawamura and Ferguson will continue the 'Frontier' venture for many volumes to come.

*This book was reviewed by
Dr. N.R. Thomas
Physiology Division
Faculty of Dentistry
University of Alberta
Edmonton, Alberta, Canada*

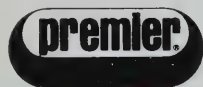
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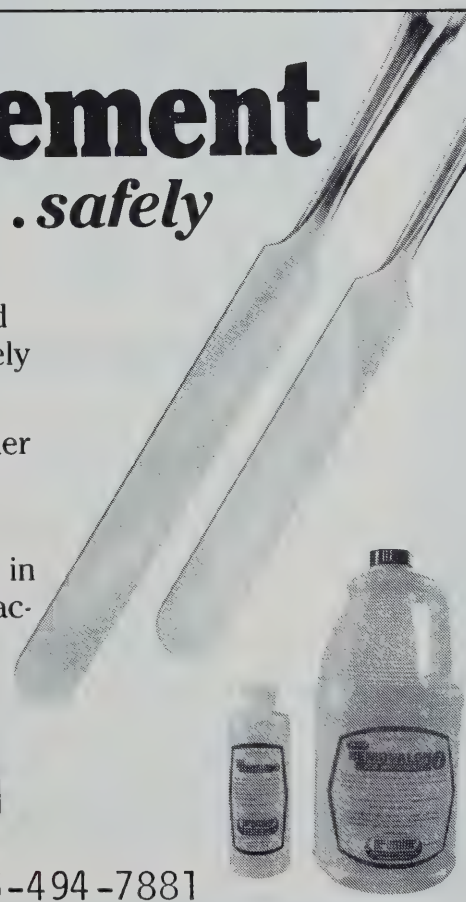


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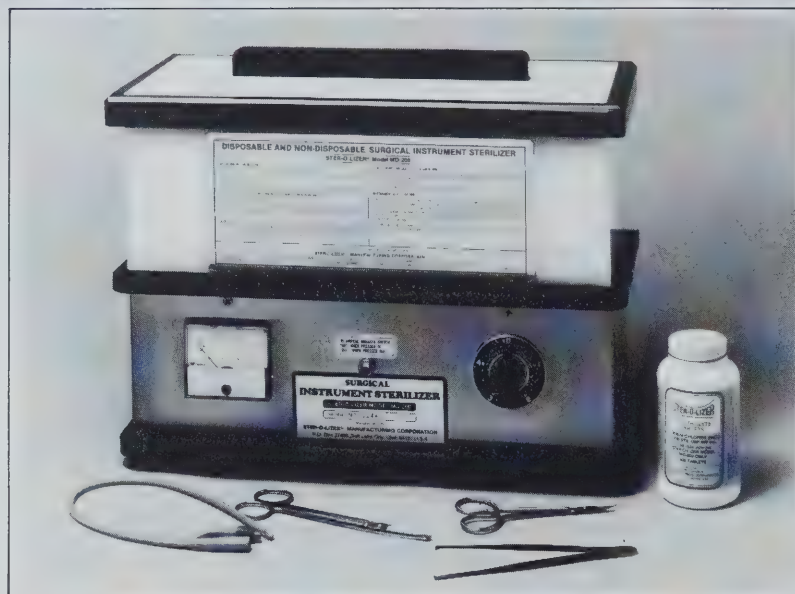
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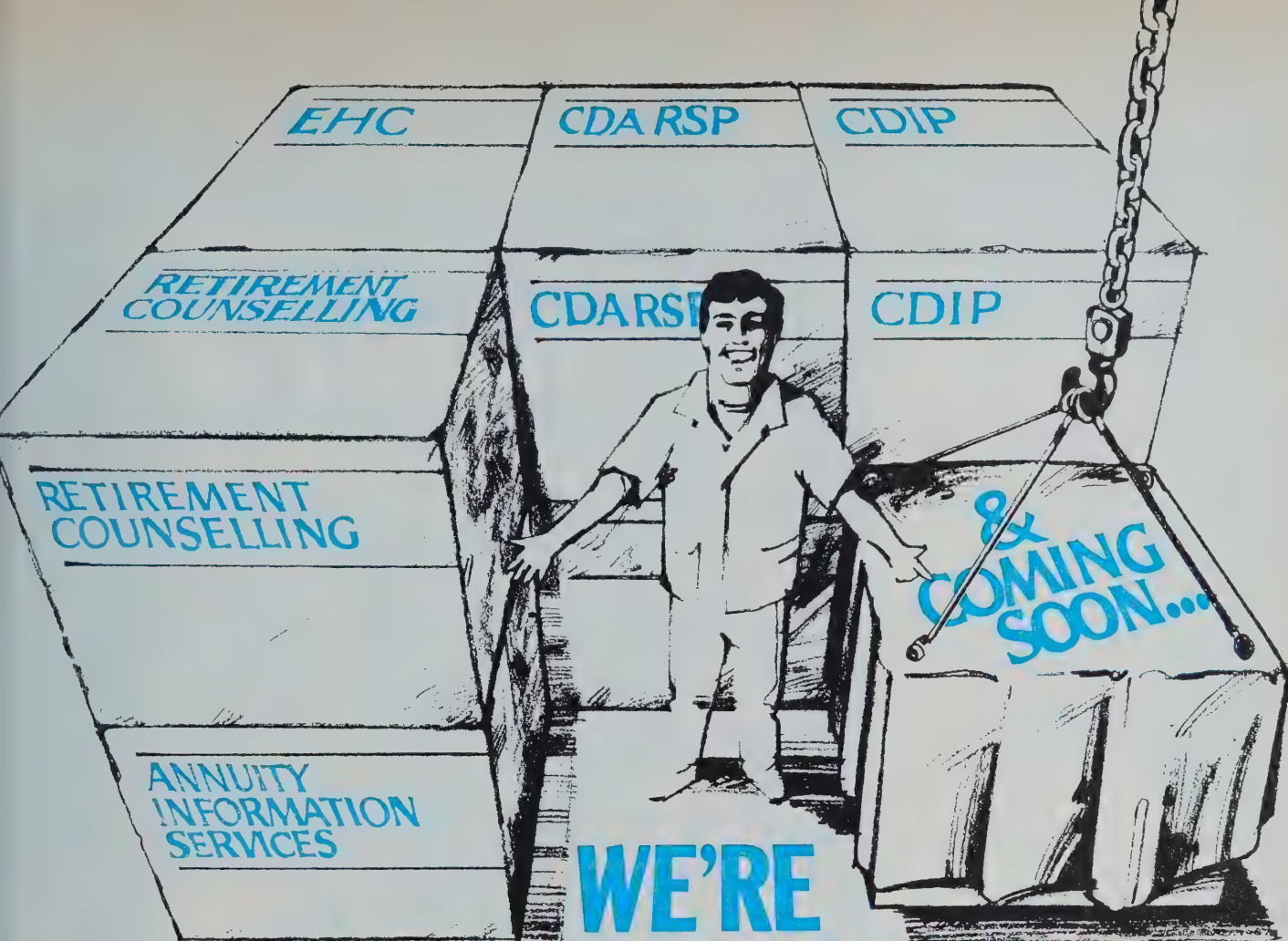
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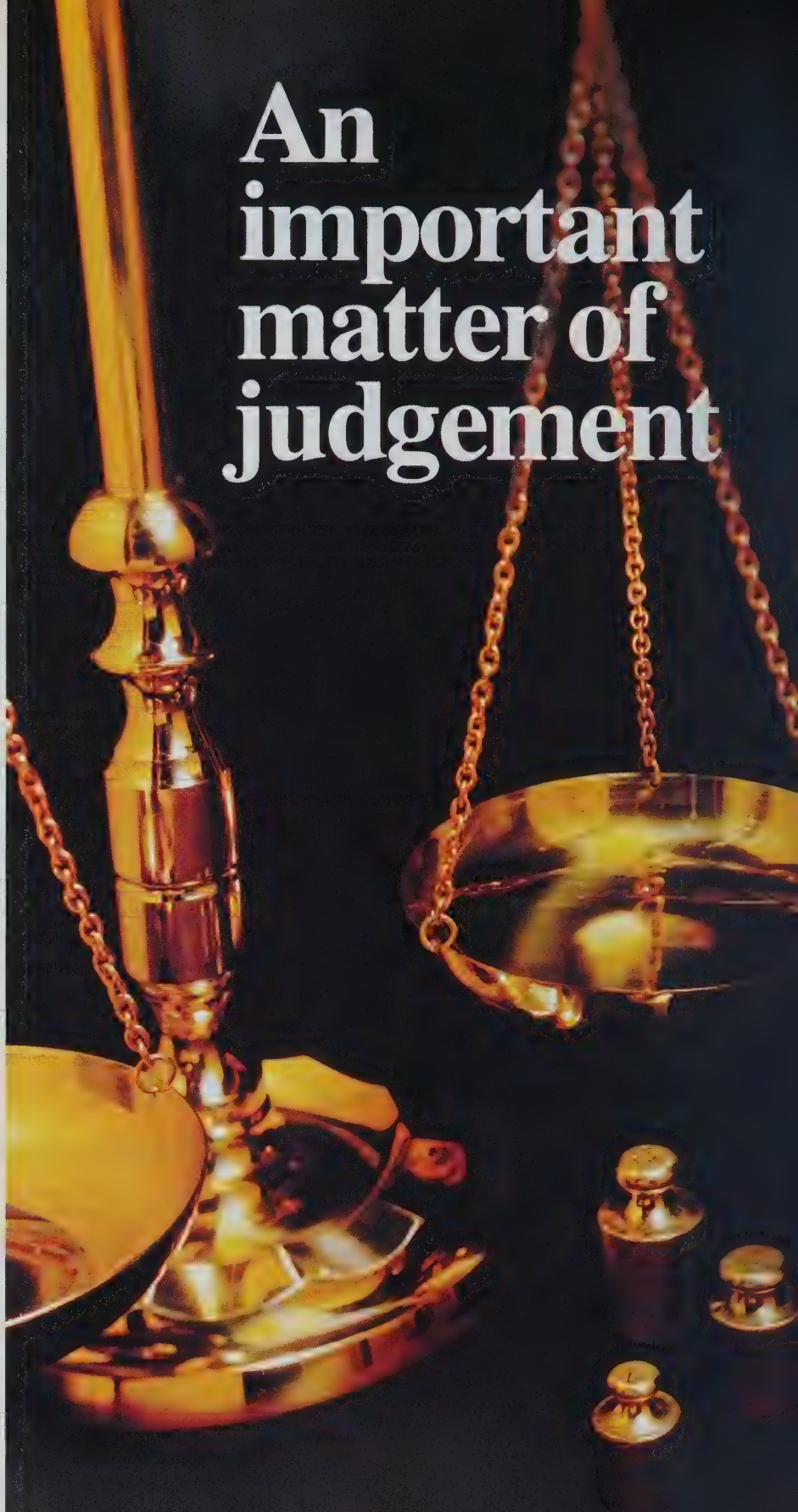
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not indicated	ANTI-INFLAMMATORY	required dosage generally exceeds analgesic/antipyretic levels and regular administration is necessary — lesser or intermittent dosage is ineffective
SAFETY		
hypersensitivity in rare instances	ADVERSE EFFECTS	GI bleeding, ulceration, nausea, vomiting, diarrhea, vertigo, tinnitus, hearing loss, pruritus, urticaria, angio-edema, anaphylaxis
slight increase in prothrombin time for patients on oral anti-coagulants but generally clinically insignificant	PRECAUTIONS	history of GI ulcerations, bleeding tendencies, anemia or hypoprothrombinemia; patients with asthma or other allergic conditions; concomitant use with anticoagulants, uricosurics, other non-narcotic analgesics, hypoglycemics, alcohol, methotrexate.
none, except rare hypersensitivity	CONTRAINDICATIONS	salicylate sensitivity, active peptic ulcer
no known risk	IN PREGNANCY	risk of anemia, hemorrhage, delayed or prolonged labour, increased risk of intracranial hemorrhage in premature infants, premature closure of the ductus arteriosus
no specific risk	IN CHILDREN	specific risk of intoxication using therapeutic dosage in febrile and dehydrated children
rare equivocal reports of reversible liver function abnormality at high dosage	HEPATIC TOXICITY	reversible hepatitis in apparent risk groups at high dosage
equivocal	ANALGESIC NEPHROPATHY	equivocal
oral anticoagulants (as above) chloramphenicol (increased half life)	DRUG-DRUG INTERACTIONS	oral anticoagulants, uricosurics, non-steroidal anti-inflammatory agents, oral hypoglycemics, corticosteroids, ethyl alcohol, methotrexate
ACUTE OVERDOSE		
potentially serious	CLINICAL RISK	potentially serious
supportive management and/or specific antidote (N-acetylcysteine)	TREATMENT	supportive management — no specific antidote

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At the August meeting of the CDA Board of Governors, which took place in Halifax, Nova Scotia, the Board voted in favour of restoring the Journal to full circulation as of this issue.

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TARGETING PREVENTIVE SERVICES

IN THE SASKATCHEWAN DENTAL PLAN

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Dental Health Educator
Saskatchewan Dental Plan

INTRODUCTION

The dental caries rate and the distribution of caries for Saskatchewan children have changed substantially over the past decade. In response to these changes, the Saskatchewan Dental Plan (SDP) has developed a strategy of targeting preventive services to those children most at risk to dental disease. Targeting preventive dental services should result in a continued improvement in the general dental health of Saskatchewan children and ensure program funds are used in the most efficient and effective manner possible.

The strategy involves identifying children who are at high risk to dental disease and providing additional preventive services for these children. The decision by the Saskatchewan Dental Plan to develop a targeting strategy in its preventive program is based on dental health data of Saskatchewan children plus other literature which supports the concept of targeting high-risk children.¹⁻⁵

This paper will review the data on which the decision to target preventive services was based. In addition, it will briefly describe the criteria to be used for the identification of high risk children.

The Saskatchewan Dental Plan Background

The Saskatchewan Dental Plan is a school-based dental care program totally funded by the provincial government. It provides routine dental care to all enrolled children at no cost to parents. All Saskatchewan children aged from five to 16 are eligible to enrol in the program. Currently, 157,624 children are enrolled, representing 89.9 per cent of all eligible Saskatchewan children.

All children five to 13 years old, plus those 14 to 16 years old who live in remote areas have services provided by teams of dental therapists and dental assistants under the indirect supervision of a Dental Plan dentist. The majority of 14-16 year olds have services provided by a private practitioner of their choice.

The care provided by SDP staff is performed in clinics located in schools throughout the province. These clinics typically have one dental chair, dental light, mobile cart, compressor and all other equipment and instruments necessary to perform routine preventive and restorative procedures.

The services provided by the SDP to enrolled children are:

1) one annual examination plus any required restorative treatment;

2) preventive services, including topical fluoride treatments, rubber cup prophylaxis, self prophylaxis, dental health education, fluoride mouthrinse programs and fissure sealants.

DENTAL HEALTH DATA

Caries Rate Decline

The dental caries rate of Saskatchewan children has dropped significantly over the past 11 years. The advent of the Saskatchewan Dental Plan (1974) and the general decline in caries prevalence now seen throughout the western world are the likely reasons for this reduction. As **Table 1** illustrates, the DMF of a six year old child has dropped from .94 in the 1974-75 school year to .23 in 1984-85, an overall eleven-year decrease of 75.5 per cent. Decay rates for deciduous teeth have also dropped significantly over the past 11 years. During the 1984-85 school year, the average number of decayed deciduous teeth for a six year old child was 1.01 compared with 4.11 in 1974-75.⁸ Cumulatively, the average number of decayed permanent and deciduous teeth for a six year old child has dropped 75 per cent over the past 11 years (see **Figure 1**).

Caries Distribution Patterns

The pattern of decay among children enrolled in the Saskatchewan Dental Plan has also changed over recent years. When the Dental Plan began in 1974-75, decay was found almost universally among Saskatchewan children. Today, larger numbers of children are caries-free. The percentage of six year olds with a DMF and def equalling zero jumped from 12 per cent in the 1974-75 school year to 31.77 per cent in 1984-85. This increase in caries-free, restoration-free children has occurred in all age groups in the Saskatchewan Dental Plan. (See Table 2).

In addition to greater numbers of caries-free children, data compiled on caries distribution patterns reveal that a small number of enrolled children possess the majority of the decay. In the 1984-85 school year, 15.6 per cent of the children possessed 74.8 per cent of all decayed surfaces. The other 84.4 per cent had little or no decay. Over half (60.4 per cent) of the children

enrolled in the Saskatchewan Dental Plan in the 1984-85 school year had no decay on either the permanent or deciduous teeth (see Table 3).

Distribution Among Age Groups

Decay is not evenly distributed among the various age groups under the care of SDP staff. Data from the 1984-85 school year show there was an average of 2.16 decayed teeth per five year old child, yet only .55 decayed teeth per 11 year old child (see Figure 2). Five and six year olds were most likely to have the highest decay rates among enrolled children.

Distribution Pattern Among Teeth

Finally, data collected from treatment records show decay is not evenly distributed among all teeth or surfaces. One-surface amalgams on permanent teeth account for 61.13 per cent of all amalgams placed on permanent teeth.⁷ Assuming most of these

one-surface amalgams are placed on occlusal surfaces or in buccal or lingual pits, then caries is now largely a pit and fissure disease.

Further investigation of one-surface amalgams placed on permanent teeth of five to 13 year olds shows the greatest numbers are placed on first molars (see Table 4). One-surface restorations on permanent premolars account for only 6.2 per cent of all one-surface amalgams placed on the permanent teeth of children treated by SDP staff.

Criteria for Identifying High Risk Individuals

As caries is primarily concentrated among a small group of children, it was thought that an overall improvement in the dental health of Saskatchewan children could be made by identifying this group and providing them with additional preventive services. Therefore, guidelines for the identification of high risk children were developed.

TABLE 1

Progression of Decayed, Missing and Filled (DMF) Permanent Teeth by Age 1974-75 to 1984-85

Age School Year	6	7	8	9	10	11	12	13	14
1974-75	.94	—	—	—	—	—	—	—	—
1975-76	.80	1.95	—	—	—	—	—	—	—
1976-77	.72	1.81	2.71	3.10	—	—	—	—	—
1977-78	.67	1.52	2.54	3.21	3.68	—	—	—	—
1978-79	.57	1.46	2.26	3.01	3.65	4.42	5.23	—	—
1979-80	.53	1.24	2.08	2.69	3.43	4.20	5.24	6.25	—
1980-81	.38	1.17	1.80	2.47	3.07	3.94	4.96	6.25	7.32
1981-82	.32	.93	1.76	2.30	2.96	3.63	4.71	5.86	7.17
1982-83	.31	.83	1.45	2.27	2.76	3.43	4.33	5.48	7.07
1983-84	.26	.71	1.23	1.80	2.57	3.18	4.05	4.99	6.38
1984-85	.23	.61	1.08	1.55	2.14	2.94	3.67	4.61	5.78

TABLE 2

Percentage of Children with no Decayed, Missing or Filled Teeth by Age

School Year	DMF + def = 0					DMF only ¹ = 0						
	5	6	7	8	9	10	11	12	13	14	15	16
1974/75	—	12.0	—	—	—	—	—	—	—	—	—	—
75/76	19.3	13.4	7.7	—	—	—	—	—	—	—	—	—
76/77	20.1	14.1	9.0	5.2	15.2	—	—	—	—	—	—	—
77/78	21.8	15.4	9.9	6.0	12.9	10.7	—	—	—	—	—	—
78/79	25.4	17.0	10.5	6.9	14.7	9.3	7.9	10.3	—	—	—	—
79/80	27.4	19.0	12.7	8.0	18.7	11.1	7.6	6.1	6.8	—	—	—
80/81	33.0	21.9	13.9	9.7	21.9	14.7	9.1	6.0	5.0	5.3	—	—
81/82	34.7	25.3	16.1	10.1	25.0	16.6	11.7	7.3	4.9	4.1	4.2	—
82/83	37.2	27.1	20.0	13.2	25.6	19.7	14.1	10.1	7.0	4.4	3.6	3.4
83/84	41.1	30.0	21.9	16.2	35.1	21.7	16.7	12.1	9.0	5.8	4.1	3.3
84/85	42.9	31.8	23.2	16.8	40.4	29.4	19.0	14.5	10.1	7.2	5.2	4.0

¹ The def for these children has not been reported since a high proportion of deciduous teeth have already been shed.

TABLE 3

Percent of Children By Number of Decayed Surfaces (Permanent and Deciduous) 1984-85 School Year

Number Of Decayed Surfaces	Percent Of Children
0	60.4
1	14.4
2	9.6
3	4.5
4	3.3
5+	7.8

TABLE 4

Percent Of One-Surface Amalgams Placed by the Saskatchewan Dental Plan On Permanent Teeth By Tooth For 5-13 Year Olds in 1984-85 School Year

Tooth	Number of One Surface Amalgams	Percent Of One Surface Amalgams
1st Premolar	1135	3.0
2nd Premolar	1225	3.2
1st Molar	23538	61.5
2nd Molar	11164	29.2
Other Teeth	1184	3.1

These guidelines fall into three categories, which are discussed individually below.

Individuals Or Groups

Any child having three or more decayed surfaces within the past school year or having a history of a continued high decay rate is identified as being in the high-risk group. These children receive a second recall examination per year plus any additional preventive services they may require.

Furthermore, any groups of children (either classroom groups or an entire school) where the majority of students have three or more decayed surfaces are identified as high-risk. They receive appropriate group preventive services, including classroom instruction and fluoride mouthrinsing.

Three or more decayed surfaces per year was chosen to represent the high-risk group. This choice was based on the actual number of children in the Saskatchewan Dental Plan that had three or more decayed surfaces in the past year and the consideration of extra time required to target high-risk children. Those enrolled children with three or more decayed surfaces (who represent 15.6 per cent of all enrolled children) are the maximum number of individuals towards whom SDP staff will be able to direct additional services in the coming year. As dental health improves, these guidelines will change to reflect the improved health.

Teeth and Surfaces

Data from the 1984-85 school year showed that 61.13 per cent of all amalgam restorations placed on permanent teeth were one surface amalgams. Of these the majority were placed on either the first or second molar. Therefore, in addition to targeting individual children, occlusal surfaces of molars have also been identified as a target area, specifically for the placement of pit and fissure sealants.

Age Groups

Data on the caries distribution by age of enrolled children indicate that five and six year olds are most at risk* to decay (see Figure 3). Therefore, these age groups have been identified as target groups for additional individual preventive services. Since these younger age groups are also the ones who have yet to receive much dental health education they are also targeted for individual and group dental health education.

The combination of eruption times of permanent teeth and the prevalence of pit and fissure decay in the first permanent molars identifies the six to eight year olds as a target group for fissure sealants. To a lesser degree, 12 to 14 year olds are also targeted

* at risk is defined as having three or more decayed surfaces in the last school year.

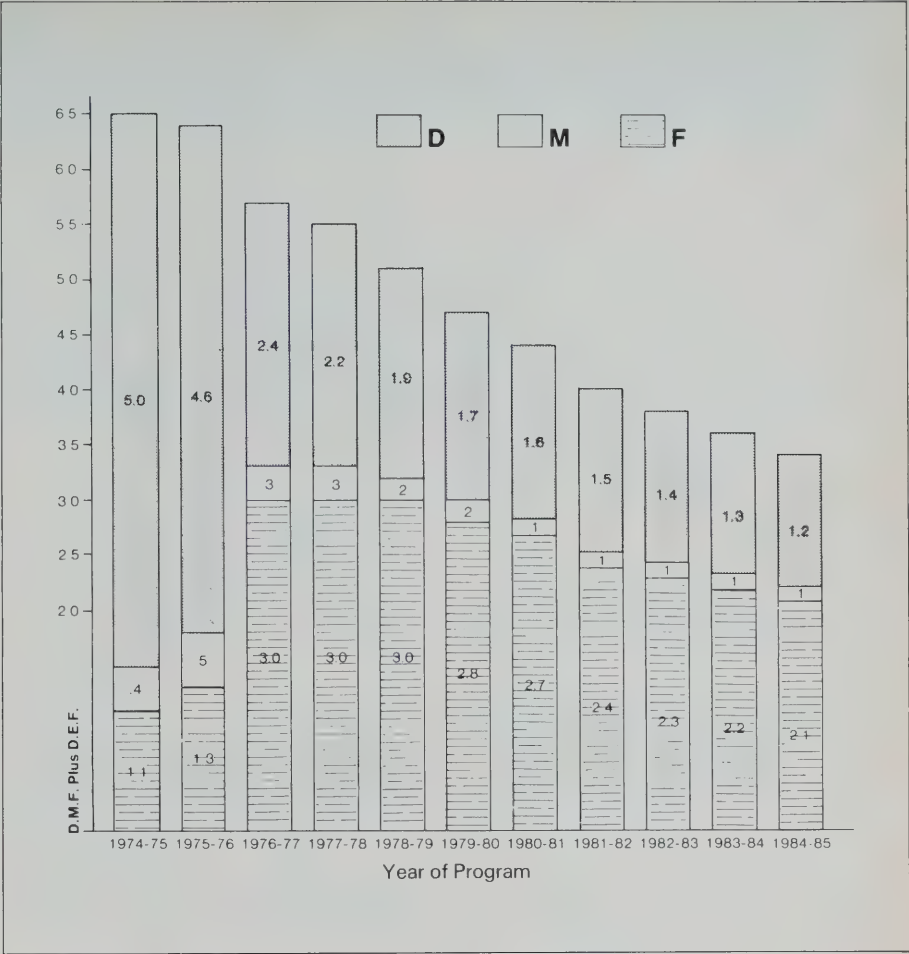


Figure 1 Total D.M.F. Plus d.e.f. for a Six Year Old Child by Year of Program

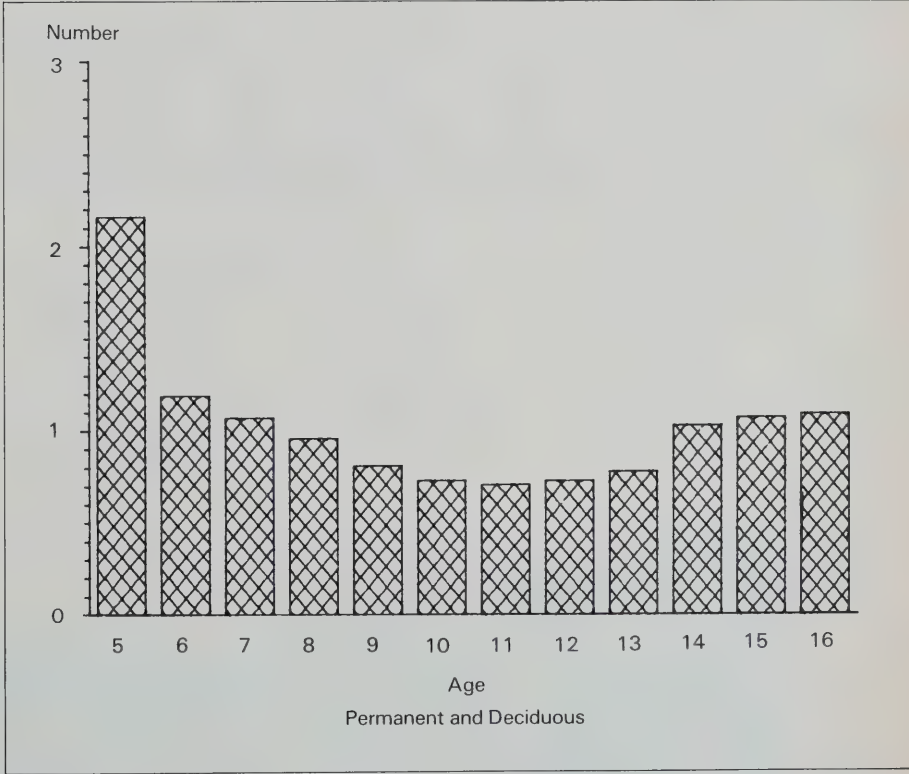


Figure 2 Average Number of Decayed Teeth by Age 1984-85 School Year

for fissure sealants on second permanent molars.

These guidelines have been established to assist clinical staff in the identification of high-risk children and in planning treatment for children assigned to them. Though these guidelines will be adhered to as closely as possible, it must be recognized that Saskatchewan Dental Plan staff care for children from a wide range of settings. There are both fluoridated areas and non-fluoridated areas in both urban centres and remote rural regions. Because of the regional variation and the resulting variation in dental health, the operational criteria used to identify high risk individuals will change somewhat because of local circumstances.

Discussion

Targeting preventive services to those most at risk to disease is not a new strategy for many private health providers and some public health programs. It is, however, a relatively new strategy in dental public health programs. As with any new emphasis or strategy, there are many accompanying questions and concerns to address.

Of prime importance to the Saskatchewan Dental Plan was the question of where staff time would be found to provide the extra services to high risk individuals. The declining decay rates (and therefore the reduced time spent on restorative procedures) has provided part of the additional time required. The remainder of needed staff time will be found by reducing the amount of low-benefit procedures that are still being provided to enrolled children. These include routine rubber cup prophylaxis,⁶ yearly classroom education for all children, brushing programs, plaque control programs and unnecessary fissure sealants. These services, though not eliminated, will be provided only to those children or groups with an identifiable need for them.

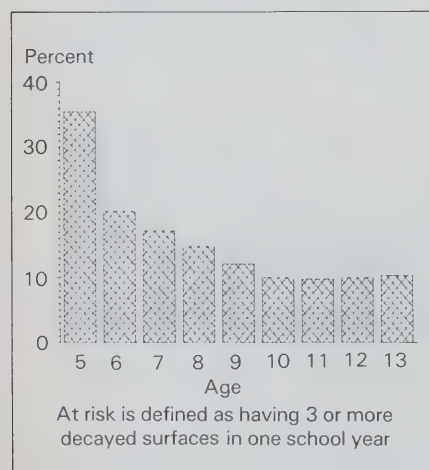


Figure 3 Percent of Children at Risk by Age 1984-85 School Year

Another issue requiring careful consideration is the question of acceptance by the SDP staff and the public of targeting services to those most at risk. For the most part, dental public health programs have traditionally delivered their services universally to those under their care. Both those providing and those receiving these services have become accustomed to this delivery strategy. With the change from a universal delivery strategy to a targeting strategy, questions and concerns will likely be raised and must be addressed on an ongoing basis.

Other issues, such as targeting those young people at high risk to periodontal disease, are currently being investigated and are topics for future discussion.

Conclusion

Targeting preventive services to those most at risk is a strategy for identifying high risk children and providing them with additional preventive services as they are required. Because of reduced decay rates and the uneven distribution of decay, targeting preventive services toward children with high decay rates is seen as a logical and appropriate strategy for delivering preventive dental services and one which results in program funds being used in the most efficient and effective manner possible. The long-term objective of targeting is to ensure continued improvement in the dental health of Saskatchewan children.

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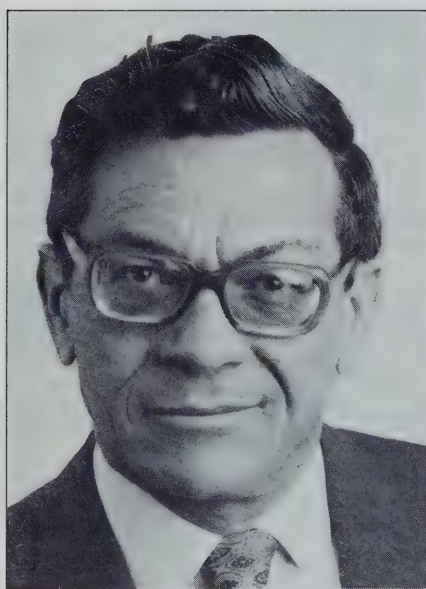
PALEODONTO- PATHOLOGY AND PALEODONTO- THERAPY

G.H. Sperber

Department of Oral Biology, Faculty of Dentistry
University of Alberta, Edmonton

Not to know what has been transacted in former times is to continue always as a child. If no use is made of the labours of past ages, the world must remain in the infancy of knowledge. – Cicero.

The highly mineralized nature of bones and teeth make them uniquely permanent recorders of biological events of both the recent and remote past. By virtue of the progressive mineralization process of hard tissues during their formation – so complex that it is still not fully understood – being highly vulnerable to metabolic upsets, nutritional deficiencies and subsequent lesions, a permanent kymographic record of these events is irreversibly imprinted upon the structure of bones and teeth. While bone tissues may, and indeed do, repair such defects, teeth are incapable of altering their pristine mineral structure. Enamel and dentine retain their initial constitution until they are destroyed. The extraordinarily high degree of mineralization of dental enamel makes this tissue not only the hardest in the human body, but effectively fossilizes our teeth during life, which causes them to remain the most persistent parts of the body after death. Yet, paradoxically, teeth are the most susceptible structures to rapid carious destruction



in the living, because of their high vulnerability to acid demineralization.

The record of this formation and destruction of ancient dentitions and their adnexa constitutes the science of paleodontopathology. Of particular historical interest to dentists is the study of past dental diseases and consequently of ancient treatment practices (paleodontotherapy).

One of mankind's oldest nutritional disorders is Vitamin C deficiency, or scurvy, that first manifests itself by swollen and bleeding gums and loosened teeth. The loss of ability to synthesize ascorbic acid, a characteristic of all primates, requires ingestion of Vitamin C-containing fruits. Since many of these fruits are susceptible to fermentation when becoming over-ripe, they become a source of alcohol. The origins of human inebriation may well be traced to the need to ingest Vitamin C-rich fruits which, in the fermented state, provide a Bacchanalian elixir. The cultivation of fermentation to produce alcoholic beverages was undoubtedly one of mankind's earliest culinary activities.

Manifestations of periodontal disease indicating Vitamin C deficiency as antemortem erosion of the alveolar bone is a feature of many early hominine skulls. Examples of such periodontal destruction are to be seen in skulls from ancient Crete (Brothwell, 1959), and the Ebers papyrus (1500 B.C.) contains references to gingival disease and treatment for other oral disorders (Fox, 1964).

Dental caries undoubtedly existed at the dawn of human history, but was exceedingly rare among the australopithecines and earliest hominines (Skinner and Sperber,



Figure 1 Kabwe (Broken Hill) "Rhodesian" cranium from Zambia, illustrating dental caries and periodontal abscess perforation over the roots of 26 and 27. Note the trephination hole in the squamous temporal bone. (By kind permission of Professor M.H. Day).



Figure 2 Palatal view of the Kabwe (Broken Hill) "Rhodesian" cranium from Zambia, illustrating the severe dental caries present in most of the maxillary teeth. (By kind permission of Professor M.H. Day).

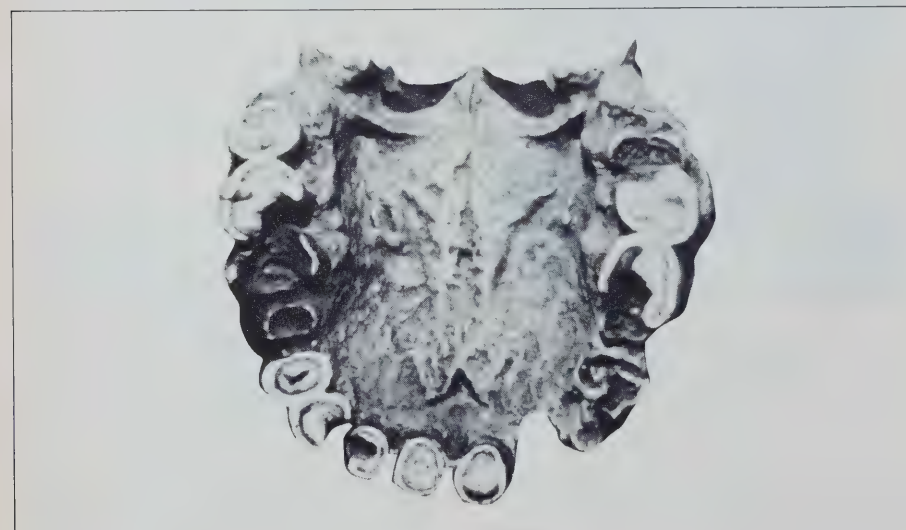


Figure 3 Model of palate of "Rhodesian" cranium, depicting dental caries.

1982). Nevertheless, the presence of this disease was dramatically demonstrable in a neanderthaloid hominid, once known as the "Rhodesian skull" (Fig. 1) discovered at Kabwe (Broken Hill) Zambia in 1921 and estimated to have existed anywhere between 35,000 and 110,000 years ago. This skull shows the most severe dental disease of any recovered fossil hominid (Fig. 2). "At least nine of the teeth had advanced decay, in half the cases nothing remained but a small shell of the teeth. . . . In addition there were some root abscesses and probably some pyorrhea" Hrdlicka, (1980). (Fig. 3)

The source of refined sugar for such rampant dental caries was probably honey, for man, like the honey-bear, has an inherent "sweet tooth" with a predilection for sugared foods. Campbell (1985) postulated that mankind's initial discovery of alcohol arose from the fermentation of stored honey producing a mead that when ingested made the aching teeth feel "better"! Hence, the origin of paleopharmotherapeutics! Interestingly, alone among members of the animal kingdom living in the natural state, bears are known to suffer from dental caries, the penalty they pay for raiding bee's nests for honey!

The Broken Hill "Rhodesian" skull exhibits a curious feature of skull trephination in the squamous temporal bone of the left side (Fig. 1). The deliberate incursion into the skull, with evidence of ante-mortem healing of bone at the margins of the trephination hole appears to provide evidence of one of the earliest surgical operations ever undertaken. The intense dental pain that "Rhodesian Man" must have suffered from the dental and periodontal lesions would have been motive enough for an operation on his head, perhaps to let out the "demons" causing his pain!

The earliest practise of "dentistry" would logically have been extraction of decayed, aching teeth rather than their restoration. Celsus (circa 30 B.C.) may have introduced the concept of filling teeth when recommending "stuff with lead or linen decayed and frail teeth which are to be extracted in order that they may not break down under the forceps". The immediate relief from pain afforded by dental extraction would have provided convincing evidence of the efficiency of the operation. Two Roman physicians, Archigenes and Galen (100-200 B.C.) recommended the drilling of a hole in the pulp of an aching tooth. Thereafter, the possibility of repairing or replacing defective teeth with artificial materials must have occurred to ingenious operators. The adornment of the teeth with precious jewels and metals later became an adjunct to the practice of tooth restoration or replacement in some early civilizations (Fastlicht, 1976).

Evidence of early dental disease and a possible attempt at relief of pain in a Neolithic skull (circa 2,000-3,000 years ago) was reported by Bennike (1985) who, in observing both dental caries and periodontal abscesses in one skull discovered in a mass grave, noted the presence of a circular hole in tooth 17 of one cranium (Fig. 4). Microscopic examination of the hole drilled into the buccal aspect of the roots revealed the presence of small amounts of calculus deposits in the cavity, indicating that the hole had been drilled during life. Contemporaneous flint stones with extremely sharp edges that could have been used as "dental drills" are depicted in Figure 5.

More positive evidence of early dental treatment was offered by Zias (1986) in reporting on a Nabatean skull of 200 B.C. recovered from a mass grave in the Negev desert in Israel in 1985. Severe dental lesions observed in the isolated maxilla included extreme attritional wear, four periodontal abscesses, an impacted canine tooth, a supernumerary tooth, interstitial dental caries and a right lateral incisor root that was greenish in color. The extremely worn incisor crown had an exposed root canal (Fig. 6) containing a plugging material. Radiographic examination revealed the presence of a bronze wire, approximately 2.5 mm in length implanted in the root canal (Fig. 7). The corrosion of the bronze wire imparted the green color to the tooth. The dilaceration of the root was probably caused by the impacted canine. The periapical abscess evident on the radiograph undoubtedly arose from exposure of the pulp of the worn crown. Zias and Numeroff (1986) speculated upon the purpose of the insertion of the wire, ranging from attempted drainage of the cyst to prevention of intrusion of further "tooth worms" (once believed to be the etiological agents of dental caries), to being an attachment pin for an artificial tooth. A greater combination of concurrent paleodontopathological lesions has probably not been previously reported, and it is believed that this is the earliest instance of "root canal therapy" on record.

Dental cavities were believed in ancient times to be caused by a "tooth worm" that burrowed into teeth. The cavities were packed with a variety of materials, such as tar, pitch or cotton soaked in a powder and oil mixture which might have contained anything from red nitre to pounded peach kernels. These early soft mixtures were not sufficiently strong to be retained permanently, but they temporarily stopped pain by providing insulation and keeping air from the exposed dentine and pulp. Some of the contents of these fillings might have had an obdurate effect.



Figure 4 Neolithic skull from Langeland, Denmark, illustrating advanced dental attrition, periodontal bone resorption and an artificial cavity drilled into the buccal aspect of tooth 17. (By kind permission of Dr. Pia Bennike).

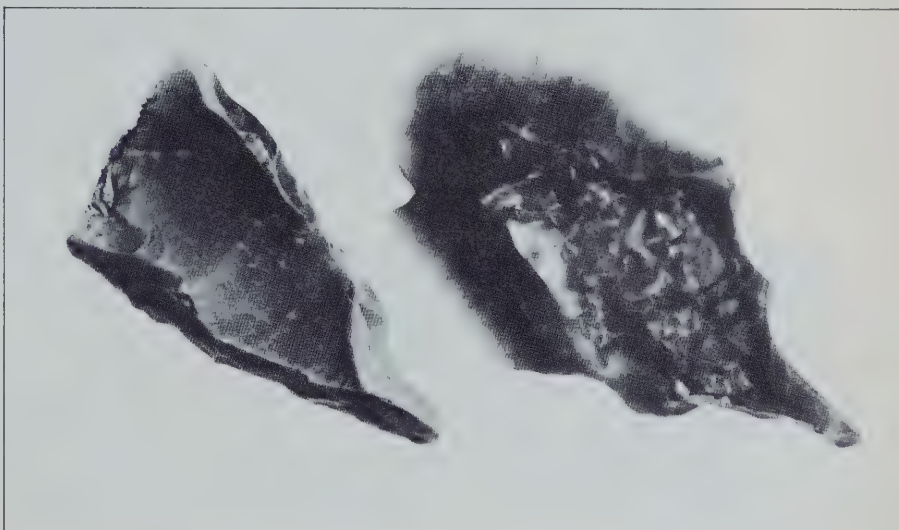


Figure 5 Neolithic flint stones from Denmark that could have been used as dental drills. (By kind permission of Dr. Pia Bennike).

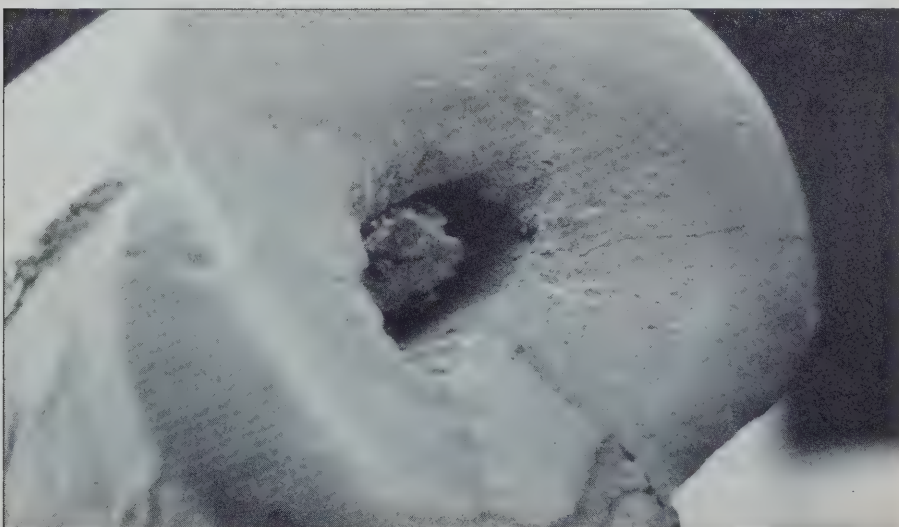


Figure 6 Photograph of extremely worn crown of right maxillary incisor of a Nabatean skull revealing bronze wire inserted into root canal. (By kind permission of Dr. J. Zias).

The first widely-used metal "fillings" — a term originating circa 1830, were made of bismuth, lead, tin and mercury mixed together into a fusible metal. The history of dental filling materials thereafter is one of rapid development of new metal combinations, cements, and more recently, of resins.

Summary

The earliest examples of dental disease (paleodontopathology) in mankind are explored and some of the earliest attempts at treatment of dental lesions (paleodontotherapy) are reported. The fascination of the origin of the dental profession in prehistoric times is being revealed by recent paleontological discoveries.

Acknowledgements

Appreciation is expressed to Professor Michael Day, University of London, for permission to reproduce Figs. 1 and 2; to Dr. Pia Bennike, Kobenhavns Tandlaegehojskole to reproduce Figs. 4 and 5 and to Joseph Zias, Department of Antiquities, Israel, to reproduce Figs. 6 and 7. Thanks are due to Jennifer Leckelt for word-processing the manuscript.

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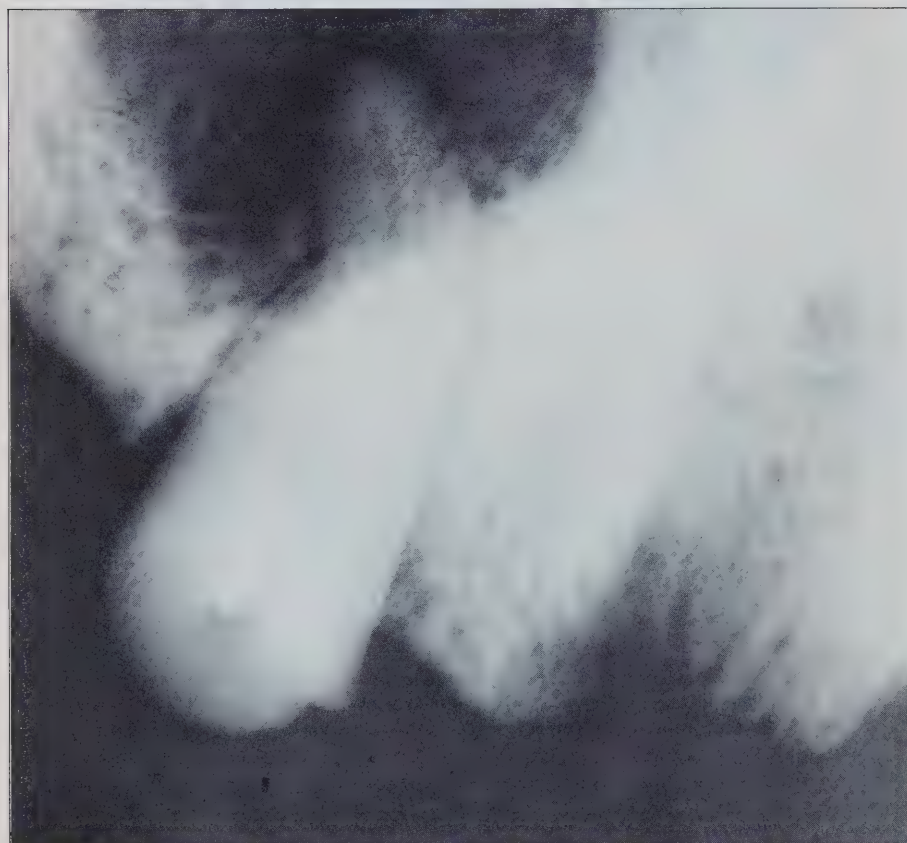


Figure 7 Radiograph of right lateral maxillary incisor of a Nabatean skull (circa 200 B.C.) showing a bronze wire, approximately 2.5 mm long inserted into the root canal. Note the dilacerated root and periapical abscess. Same tooth as Figure 6. (By kind permission of J. Zias).

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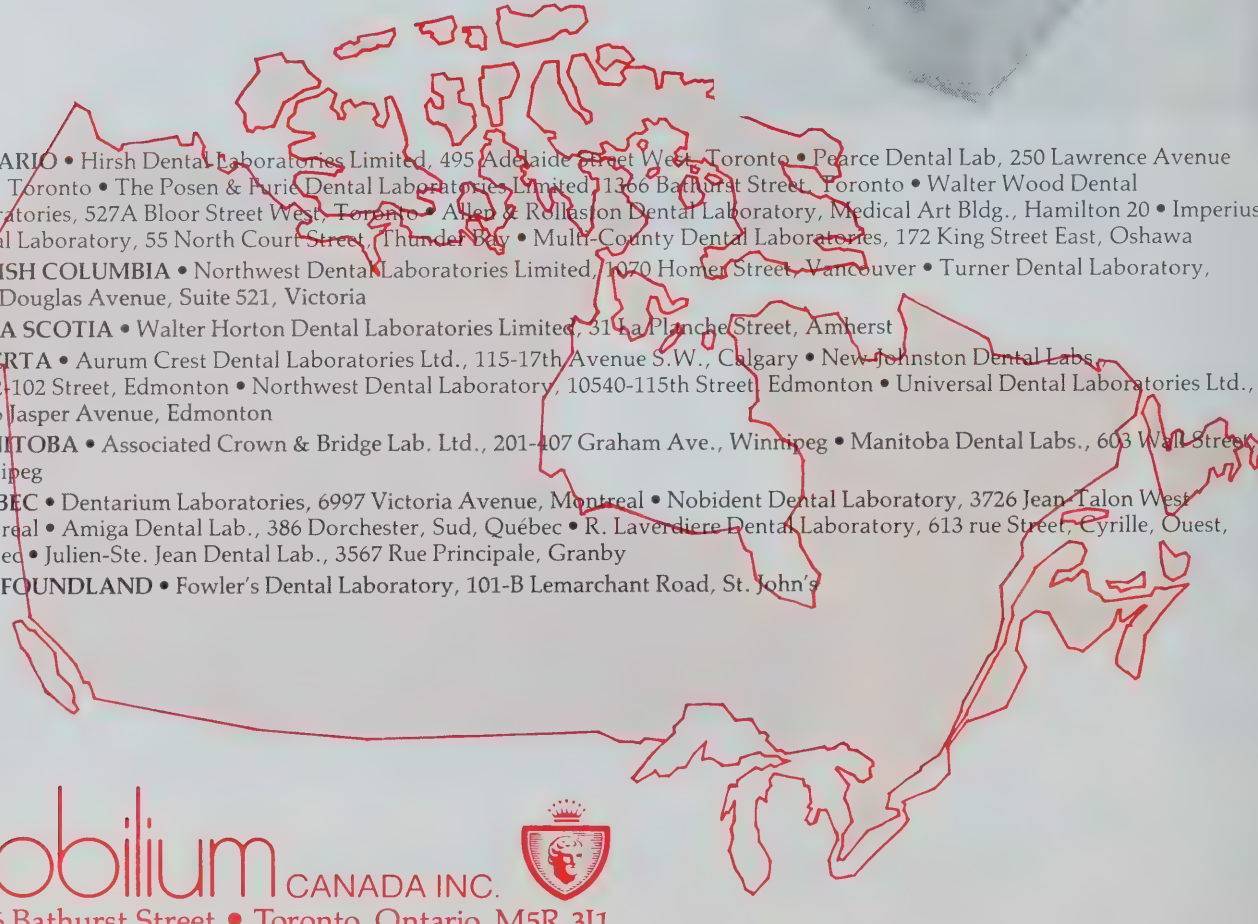
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VANCOUVER DENTAL SOCIETY SURVEYS DENTAL HABITS

G.W. Lunn, BSc, DDS
Vancouver, B.C.

ABSTRACT

As in other cities across Canada, members of the Vancouver and District Dental Society are concerned with "busyness" of their practices. For the first time, the V&DDS formed a Marketing Committee to deal with the "lack of business" in the dental office. One of the projects the committee conducted was a research survey of the public, to determine reasons for not seeing a dentist. Our objective was to obtain a point of view from the non-dental user rather than active dental patients or the dentist. A second purpose was to determine to what extent the public of Metro Vancouver seek dental care. With the above information we felt we could better determine effective dental projects to market to the public.

A quantitative phone survey was conducted by a professional research group called *Quick Pulse*. The firm made 1,942 random telephone calls over a five hour period, followed by a tabulation of statistics and results. Of those fully completing the survey, one of the most common "first mention" reasons for not visiting the dentist at least once a year was "Good teeth/no need". Perhaps surprising was the fact that the research indicated 73 per cent of the total number surveyed saw a dentist at least once a year.

Introduction

For the dental practitioner to successfully market him or herself to the non-dental user he/she must first know the person's reasons for not seeking dental care. Once we know these attitudes and perceptions, we can develop effective motivational campaigns to

change attitudes or correct misconceptions the public may have.

A quantitative survey to determine utilization behavior and consumer attitudes and beliefs is first and foremost. From there one must follow up by analyzing the responses in more depth to deal with the reasons behind the response; which will in turn help to outline effective marketing programs to change behaviour. The onus is on the dental profession, rather than commercial concerns to satisfy the needs and desires of the consumer market. We should be the educators.

Method

The quantitative survey was developed as follows: our objective was to survey only non-dental users as to why they did not see a dentist. A further purpose was to obtain numbers on how many people seek dental care on a regular basis. The committee along with a professional marketing firm called *Communications Group* designed the format of the phone survey.

Five questions were agreed upon and are as follows:

1. Do you see a dentist at least once a year? If the response was "Yes" to the question, the survey was terminated. If the response was "No", the survey continued onto the following:

2. When you visit the dentist's office do you always see the same dentist?

3. Please tell me, why you do not visit the dentist at least once a year? (First Mention)

For what other reason, if any, do you not see a dentist. (Second Mention)

4. Would keeping your teeth be (a) very important (b) somewhat important (c) not very important (d) not at all important to you.

5. And finally, into which of the following age groups may I place you (a) under 25 (b) 25-49 (c) 49 and over.

The telephone survey was conducted over five hours by *Quick Pulse Research Inc.* using 10 interviewers plus a supervisor, on a week day between the hours of 3:30 p.m.-8:30 p.m. The research survey was pre-tested to determine flow and effectiveness of questions. Phone numbers were chosen at random from the Metro Vancouver phone book.

Results

Of the 1942 calls made to the Vancouver market place, 649 calls were terminated after the first question (response "Yes") and 242 resulted in fully completed questionnaires (**Table 1**). Sixty-three per cent of these respondents indicated that when they visited a dentist it was always to the

TABLE 1

Summary of Record of Calls

	Number of Calls	Percentage
Total	1942	100
Terminated at #1	649	33
Completed Surveys	242	13
No answer	397	20
Busy	126	6
Respondent not in	24	1
Business Number	31	2
Language Problem	25	1
Operator/Disconnect	149	8
Answering Service/ Machine	55	3
Refusal	226	12
Screened	16	1
Incompleted Survey	2	0

same one (Table 2). The most common "First Mention" reason for not attending a dentist was "false teeth" – 31 per cent, followed by "Good teeth/No need" – 23 per cent. The most frequent "Second Mention" for not visiting the dentist at least once a year was "Monetary/no money", followed by "Good teeth/no need"/ (Table 2). Of the respondents who did not visit a dentist once a year 57 per cent said keeping their own teeth was "very important" to them (Table 2).

In a further retabulation of the survey to isolate the 25-49 year age population their "First Mention" for not attending the dentist once a year was "Monetary/no money" – 27 per cent, followed by "Good teeth/no need" – 20 per cent (Table 3). The 25-49 year age groups most frequent "Second Mention" was "Monetary/no money" followed by "Good teeth/no need" and 78 per cent of this age group felt keeping their own teeth was "very important" to them (Table 3).

TABLE 2

Final Results of Questionnaire

Q. 1. Do you see a dentist at least once a year?

Yes	649	73%
No	239	
Ref/DK	3	
Total Completed	242	27%

Q. 2. When you visit the dentist's office do you always see the same dentist?

Yes	152	63%
No	78	32%
Ref/DK	12	5%

Q. 3. Please tell me, why you don't visit the dentist at least once a year?

	First Mention	Second Mention
False teeth	74 (31%)	5
Good teeth/No need	55 (23%)	11
Monetary/No Money	39 (16%)	16
No Dental Plan	17 (7%)	7
Fear	14 (6%)	4
Lack of Time	13 (5%)	6
Forget	10 (4%)	2
Moved/New to Town	8 (3%)	0
Distance/Location	1	1
Other	11 (5%)*	7**
Total	242 (100%)	

*Other First Mention includes:

allergic to freezing
too old
had an operation
don't bother
teeth capped
hasn't seen a dentist for 60 years
"way I feel"
no teeth
only 5 teeth left
habit

**Other Second Mention includes:

partial dentures
habit
need false teeth
crowned 32 teeth
bad experience

Q. 4. Would keeping your own teeth be very important, somewhat important, not very important, or not at all important to you?

Very important	138 (57%)
Somewhat important	18 (8%)
Not very important	1
Not at all important	3 (1%)
DK/Refused	2 (1%)
N/A (false teeth)	80 (33%)

Q. 5. And finally, into which of the following age groups may I place you?

Under 25	21 (9%)
25-49	99 (41%)
49 and over	122 (50%)

Conclusion

The survey shows 73 per cent of the Metro Vancouver people polled seek dental care on a regular basis. Regionally the figure is high, as compared to the study conducted by the Dental Awareness Program report "Dental Health – What Canadians Think".

Of those people not seeking dental care once a year the V&DDS survey indicates 57 per cent of the general respondents and 78 per cent of the 25-49 year old age group feel it is important to keep their teeth a lifetime. Yet 23 per cent and 20 per cent respectively feel there is "no need/good teeth" to visit a dentist once a year.

If we in the profession feel it is important that the public visit the dentist once a year to prevent possible loss of teeth then we are not effectively educating the infrequent dental user to this fact. The responsibility is upon us as the experts in the industry to educate the public. Previous research tells us that the public perceives the profession as the authority in the industry (L.J. Millenson 1980)¹. Thus we must find ways to market our knowledge to the public, both user and non-user.

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Dr. Lunn is Chairman, Vancouver and District Dental Society Marketing Committee.

TABLE 3

Breakdown of Results in Age 25-49

Q. 3. Please tell me, why you don't visit the dentist at least once a year?

	First Mention	Second Mention
Monetary/No money	27%	9
Good teeth/No need	20%	8
No Dental Plan	12%	6
Dentures	10%	1
Fear	7%	3
Forget	6%	1
Other	6%	4
Moved/New to Town	3%	0
Lack of Time	6%	4
DK/REF	1%	0

Q. 4. Would keeping your own teeth be very important, somewhat important, not very important, or not at all important to you?

Very important	78%
Somewhat important	8%
Not very important	0%
Not at all important	1%
DK/REF	1%
N/A (false teeth)	12%

DK – Did not Know
REF – Refused answer

DENTAL SURVEILLANCE PRODUCES EARLIER DIAGNOSIS OF ORAL CAVITY CANCERS

J. Mark Elwood, MD, FRCP(C)
Nottingham, England
Richard P. Gallagher, MA
Vancouver, B.C.

SUMMARY

A study of 158 patients with oral cavity cancers has shown that of several factors studied, regular dental care was the factor most strongly related to staging at diagnosis; of patients with regular dental care, 46 per cent had stage I (early) tumours and 12 per cent had stage IV (advanced), while of patients without regular dental care 19 per cent had stage I and 43 per cent had stage IV tumours. Dentists have an important role in the early diagnosis of oral cavity cancer.

SOMMAIRE

Une étude portant sur 158 sujets atteints de cancers dans la cavité buccale a démontré que, de tous les facteurs pris en considération, des soins dentaires réguliers constituent le plus important pour diagnostiquer un cancer le plus rapidement possible. Ainsi, parmi les patients qui visitent régulièrement le dentiste, 46 pour cent ont des tumeurs parvenues au stade I (stade initial) et 12 pour cent, au stade IV (stade avancé), alors que parmi les patients qui ne visitent pas régulièrement le dentiste, 19 pour cent ont des tumeurs parvenues au stade I et 43 pour cent, au stade IV. Les dentistes ont donc un rôle capital à jouer pour dépister les cancers buccaux dès le début.

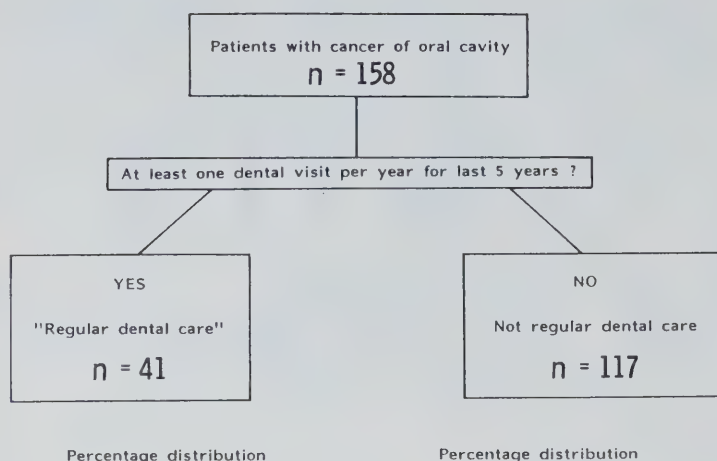
For patients who attend for regular preventive and curative visits, the dentist has the opportunity to observe the early signs of intra oral diseases, of which the most serious is squamous cell carcinoma. However, the annual incidence rate of this disease in Canada is low, approximately 2.5 per 100,000 persons,¹ and therefore a dentist who sees perhaps 2,000 patients on a regular basis would only expect to see a new case of squamous cell carcinoma once in 20 years. The study we present is, to our knowledge, the only one which has assessed the role of the dentist in the early diagnosis of oral cavity cancer in Canada.

Patients and Methods

This study assesses a continuous series of patients seen at the A. Maxwell Evans Clinic in Vancouver with a new diagnosis of a primary epithelial tumour of the tongue or oral cavity (International Classification of Diseases for Oncology Codes 144, 143, 145) who were first diagnosed between January 1, 1977, and January 31, 1980. A standardized abstract was made from the medical record, all pathology was reviewed by the clinic's pathologists, and the stage of disease at diagnosis was categorized by the criteria of the American Joint Commit-

tee 1978.² This classification is: stage I, tumour <2 cm in diameter; stage II, 2-4 cm; stage III, tumours >4 cm or with single clinically involved lymph node <3 cm; stage IV, tumour >4 cm with deep invasion, or with single node >3 cm or multiple nodes, or distant metastases. Information on the referral pattern and first symptoms was assessed from the standardized admission history. A further independent review of the records was used to assess whether the initial referral had been made by a dental or medical practitioner. Details of etiological factors such as smoking and alcohol consumption were obtained by direct interview. Each subject was asked if they made regular visits to a dentist (at least one visit annually over the past five years). Other questions related to extractions, prosthetic and gold dental work, use of dental X-rays, and use of dentures. Further details of the methods are given in the companion paper.^{3,4}

In this study, 178 new patients were identified, and comparison with the British Columbia Cancer Registry showed that this represented some 88 per cent of all patients with oral cavity cancer who were resident on mainland British Columbia.³ Interviews were successfully completed for 160 patients (90 per cent of those eligible) and staging information was complete for all but two patients.



STAGE	12	Stage IV (advanced)	43
	17		
	24	Stage III	8
	46	Stage II	31
		Stage I (localised)	19

FIRST SYMPTOM	12	Other symptoms	30
	15	Dental problem	6
	73	Visible sore	64

FIRST REFERRED BY	66	Physician	87
	34	Dentist	13

PREDICTED 5 YEAR SURVIVAL RATE **51%** **41%**

Results

Of the 158 patients with complete interview and staging information, 41 (26 per cent) had had at least one dental visit per year over the previous five years, while 117 had not. The patients with regular dental care defined in this way differed from those without regular care in their staging, symptomatology and referral patterns (Fig. 1). Of patients with regular dental care, 46 per cent had stage I tumours, 24 per cent had stage II, 17 per cent had stage III, and 12 per cent stage IV. In contrast, of patients without regular dental care, only 19 per cent had stage I lesions, 31 per cent stage II, 8 per cent stage III and 43 per cent had advanced stage IV lesions. This difference is highly significant ($p = 0.0002$).

Of patients with regular dental care, 73 per cent presented with a visible lesion, 15 per cent with a dental problem, and 12 per cent with other symptoms such as swelling or sore throat. Of patients without regular dental care, 64 per cent presented with a visible lesion, 6 per cent with a dental problem, and 30 per cent with other symptoms. These miscellaneous symptoms, which included pain, swelling and dysphagia, are indicative of later and more invasive disease.

Thirty-four per cent of patients with regular dental care were first referred by a dental practitioner, compared to 13 per cent of those without regular care. This figure is based on the records available at the cancer clinic, and is probably (for both groups) an under-estimate in that where patients were referred first by their dental practitioner to their family physician, this referral may not have been noted on the final hospital records, which might only carry the referral letter from the family physician to the cancer clinic.

Discussion

This study has shown that regular dental care is very strongly related to diagnosis of oral cavity cancer at an early stage. Published survival rates for large numbers of patients suggest that 63 per cent of those with localized tumours have an expected 5-year survival rate after diagnosis, compared to 30 per cent for those with regional spread (approximately stage III) and 17 per cent for those with distant spread (stage IV).⁴ Thus, of patients with regular dental care, the majority (70 per cent) present with localized disease and a reasonable prognosis, and only 12 per cent present with advanced disease and its accompanying dismal prognosis; whereas for patients without regular dental care, half of these present with localized disease and most of the remainder (43 per cent) with advanced

Fig. 1. Differences between patients with oral cavity cancers, with and without regular dental care.

disease. In this study, we assessed whether a large number of other factors were related to the stage distribution, including the patient's age, sex, socio-economic status, marital status, smoking habits and alcohol consumption. Of these factors, the only significant associations with early staging were socio-economic status and alcohol consumption — patients of higher status as defined by their occupation, and patients with low alcohol consumption, presenting more frequently with early lesions.⁴ However, neither of these associations was as strong or as significant as the association with dental care, and this was not altered when we simultaneously took into account the factors of socio-economic status and alcohol consumption. The relationship between dental care and early staging is therefore a direct one, and is not because patients who have regular dental care are of a different social group or differ in terms of other life style habits. This direct effect is also shown in that the relationship between regular dental care and early staging is quite specific to oral cavity cancers and is not seen with cancers of the pharynx or larynx.⁴ From the staging distribution achieved, it is possible to calculate a predicted survival rate for these patients. The calculation shows that patients with regular dental care who develop oral cavity cancer have a predicted 5-year survival rate of 51 per cent, compared to a predicted rate of 41 per cent for patients without regular care.⁴

These results show that dentistry as currently practised in British Columbia is assisting in the diagnosis of oral cavity cancer at an early stage and, because of that, probably preventing some deaths. At the same time, these results perhaps indicate that even greater awareness on the part of dentists of the early signs of oral cavity cancer (most commonly, a visible sore which does not heal) might help alleviate the problem even further.

No previous studies have assessed regular dental care in relation to the early diagnosis of oral cavity cancer. Some 10 years ago, Pogrel⁵ studied all cases of oral cancer in part of Scotland. He showed that 9 per cent of cases were first referred by dentists and a further 5 per cent were first noted by physicians and then referred to a dental hospital. Adams et al.⁶ studied patients with oral cancer who were referred to the University Centre in St. Louis, and showed that 15 per cent of the patients were referred by a dentist. More recently, Amsel et al.⁷ studied cases at the cancer hospital in Philadelphia and showed a much higher proportion — 38 per cent referred by dentists only, and a further 14 per cent referred by both physicians and dentists. The

equivalent figure in our study is 19 per cent overall, but the figures from different studies are not directly comparable as the methods of ascertainment vary. In our study, referral by a dentist was not in itself a feature of early lesions; the early diagnosis being related primarily to regular dental care. Thus, our results show that patients with regular dental care are diagnosed at an earlier stage, whether or not they are first referred by a dentist.

These results show that vigilance by dentists is useful in achieving early diagnosis of oral cavity cancers, and we hope they will encourage dental practitioners to continue and even improve their surveillance for this serious although rare disease.

We are grateful to the patients for their co-operation and to the staff of the admitting and medical record departments of the A. Maxwell Evans Clinic; to Mrs. J. Carle and Miss D. Skippen for interviewing, and to Mr. P. Stapleton for assistance with the analysis. Dr. P. Stevenson-Moore, Head, Division of Dental Oncology, Cancer Control Agency of British Columbia, gave valuable advice for the design of the questionnaire.

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Reprint requests to Dr. Elwood.

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TRAUMATIC GRANULOMAS

RESULTING FROM A JET INJECTION DEVICE

TWO CASE REPORTS

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ABSTRACT

Several types of jet injectors have become available for use in dentistry to produce local anesthesia without the use of a needle. Two cases are reported of complications arising from the use of such a device. The traumatic granulomas which occurred required surgical excision before they resolved.

SOMMAIRE

En médecine dentaire, on dispose maintenant de plusieurs sortes d'injecteurs à pression pour anesthésier des parties de la bouche sans aiguille. Voici deux cas où l'utilisation de ces injecteurs a entraîné des complications. Les granulomes traumatiques qui se sont développés ont exigé une excision chirurgicale avant de disparaître.

The technique of jet injection, which was introduced into clinical use in 1947,¹ allows fluids to be injected subcutaneously by means of a high pressure spray, without the use of a needle. Within the last 15 years,

compact self-contained jet injection devices have been developed for the injection of local anesthetics for dental use.² This report describes two cases which illustrate a possible complication of the use of this technique in oral mucosa.

The jet injection device used in both cases reported here was the MadaJet* dental model, which delivers 0.1 cc of solution per injection. This injector has been used for approximately two years in one of the author's practices (B.D.R.) for nearly all maxillary injections, and these two cases are the only instances of complications resulting from this technique which have come to our attention. The manner in which it has been used is as follows:

1. Dry the injection site with a gauze sponge and apply topical anesthetic.
2. Remove the topical anesthetic and dry off the mucosa with a gauze sponge dampened with 70 per cent aqueous ethanol.
3. Using the jet injector, inject 0.1 cc of 2 per cent Lidocaine-HCl** with

Epinephrine 1:50,000 at the site of the desired needle penetration, perpendicular to the surface of the underlying bone.

4. Infiltrate the desired anesthetic with a needle, making the penetration at the area which was previously anesthetized by the MadaJet.

This technique has resulted in nearly painless anesthetic injections. However, the anesthetic placed with the needle invariably oozes slightly from the site of the initial jet injection, necessitating an immediate, thorough rinsing of the injection site, to avoid an unpleasant taste.

CASE 1

The standard injection technique as described above was used for an operative procedure on tooth 22 in a 28-year-old male. One week later he reported a small, hard, asymptomatic lump in the oral mucosa at the injection site, and was advised to apply warm compresses and to call back if the lesion became larger, painful, or had not significantly diminished in size within one week. Five days later the lesion was hard, mobile, approximately

* Mada Medical Products, Inc., Carlstadt, New Jersey.

** Xylocaine: Astra Pharmaceuticals Canada, Ltd., Mississauga, Ontario.

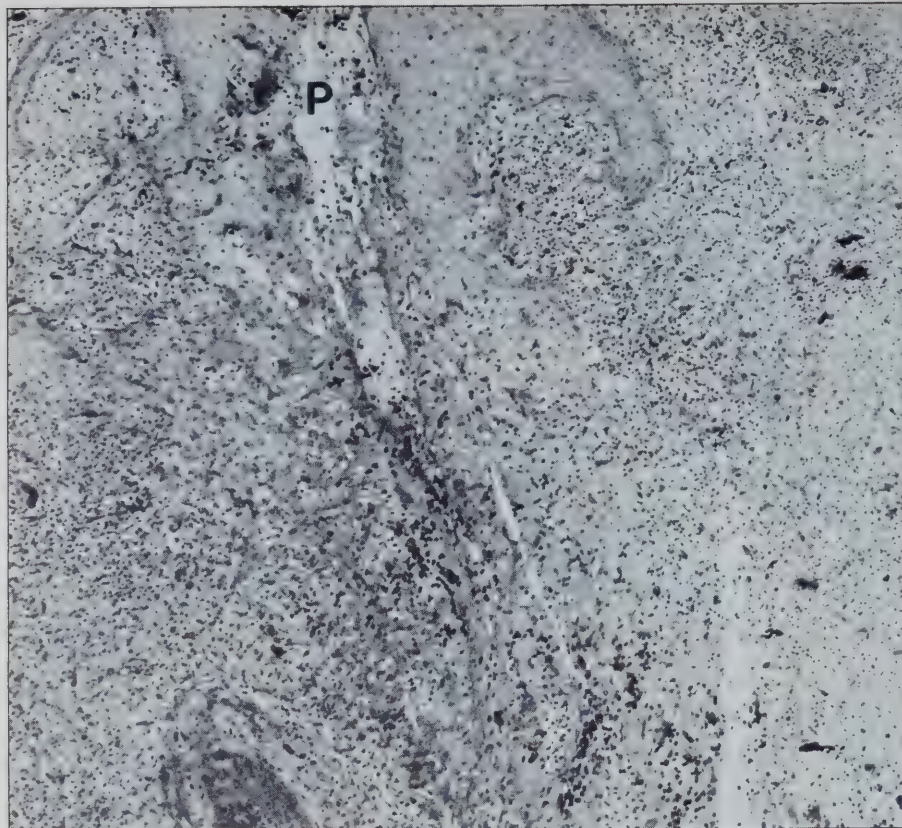


Figure 1. The injection pathway (P) is seen as a sinus tract lined with hyperplastic epithelium.

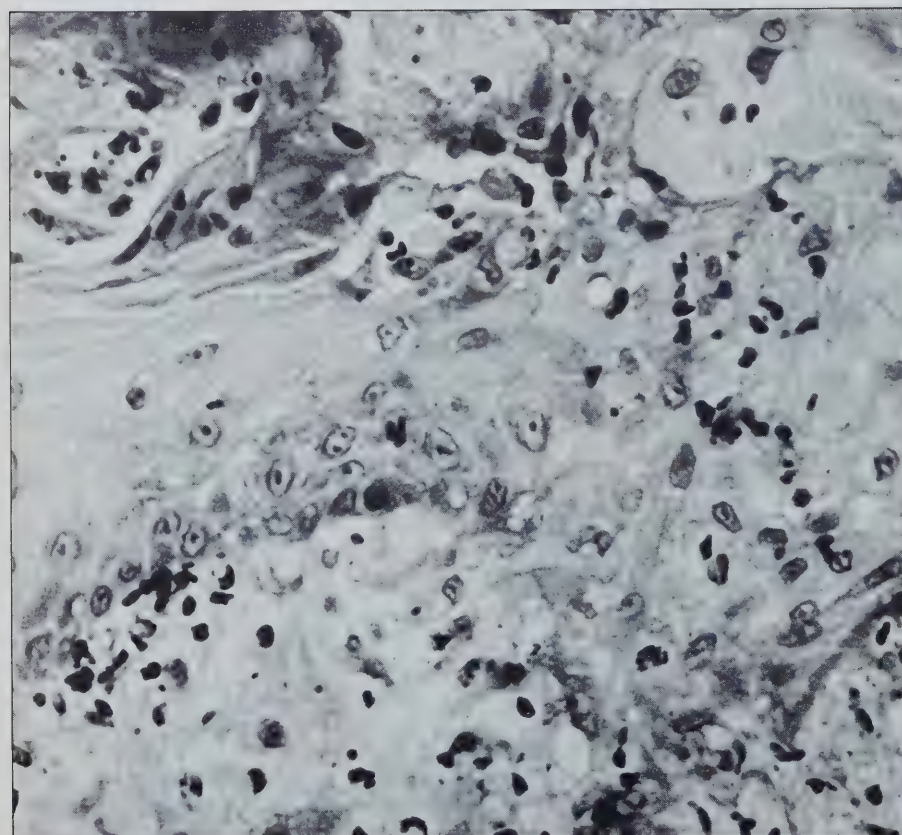


Figure 2. Clumps of epithelium appear to have been "blown" into the underlying tissue by the injection device. The considerable cell pleomorphism in some areas required that well differentiated squamous cell carcinoma be ruled out in the diagnosis.

spherical in shape and 5 mm in diameter. It was located in the vestibular mucosa 5 mm apical to the muco-gingival junction above tooth 22. The mucosa overlying the lesion was slightly paler than the normal mucosa. The patient stated that the lesion had not changed in the previous five days and that it remained asymptomatic. Ten days later (22 days after the original operative procedure), the lesion was excised and the tissue sent for histological examination.

Pathological Findings

The gross specimen included the overlying surface mucosa and measured $8 \times 8 \times 5$ mm. On hemisection, the tumor appeared solid rather than cystic. Microscopically a sinus tract lined by hyperplastic epithelium extended from the mucosal surface to near the centre of the lesion (Fig. 1). Several clusters of epithelium on two-dimensional viewing were lying free in the cellular connective tissue stroma and showed considerable cellular pleomorphism (Fig. 2). The centre of the tumor was dominated by interstitial mucus pooling (Fig. 3) bordered by macrophages, monocytes and scattered eosinophils in a vascular hyperplastic connective tissue stroma. Toward the tumor periphery, salivary glands showed disrupted architecture.

CASE 2

A lesion clinically similar to Case 1 appeared in a 14-year-old female after operative treatment of tooth 21, with pre-injection topical anesthesia using the MadaJet. Several days after the operative appointment, a smooth, regular, spherical lump appeared in the vestibular mucosa approximately 8 mm apical to the mucogingival junction above tooth 21. This lesion was hard and fixed to the slightly paler overlying mucosa, but not to underlying tissues. The lesion was asymptomatic and persisted unchanged until it was excised three months later.

Pathologic Findings

The tissue sections showed a cellular connective tissue stroma containing a few strands and clumps of hyperplastic epithelium. The surface epithelium showed irregular hyperplasia but was otherwise unremarkable. More or less normal accessory salivary gland tissue and foci of lymphocyte infiltration were seen towards the deep margin of the lesion.

Discussion

The lesions reported here were diagnosed as traumatic granulomas with sialadenitis and appear to be due to the use of the MadaJet jet injection device. The clusters and strands of hyperplastic epithelium seen

within the lesion are assumed to have been carried into the deeper tissue by the stream of fluid from the injector. Although the cross sectional area of the liquid column is smaller than the diameter of conventional needles,³ the jet injector may have a tendency to carry surface components downward with the injected anesthetic, whereas the needle will push the epithelium aside.

Traumatic injury to salivary gland tissue gave rise to interstitial mucus pooling and the macrophage response which dominates the lesions.

In case 1, recurrence of the lesion at a slightly more apical location followed the initial biopsy. The recurring lesion was dominated by hyperplastic connective tissue with some scarring from the previous surgical injury, but with no evidence of mucus retention. Case 1 resolved completely following excision of the recurring lesion. In neither case did the lesions show signs of regression or resolution prior to their excision. While the consequences were not serious, and the incidence of two reported cases in two years of use seems somewhat low, the potential for the device to induce this type of lesion deserves some

consideration. In order to minimize this tendency it may be useful to make the injection as near as possible to the attached gingiva, away from the lip and depth of the vestibule, in order to avoid injury to accessory salivary glands. Regular maintenance of the injector, ensuring that the jet stream is as even and compact in cross section as possible, is also important.

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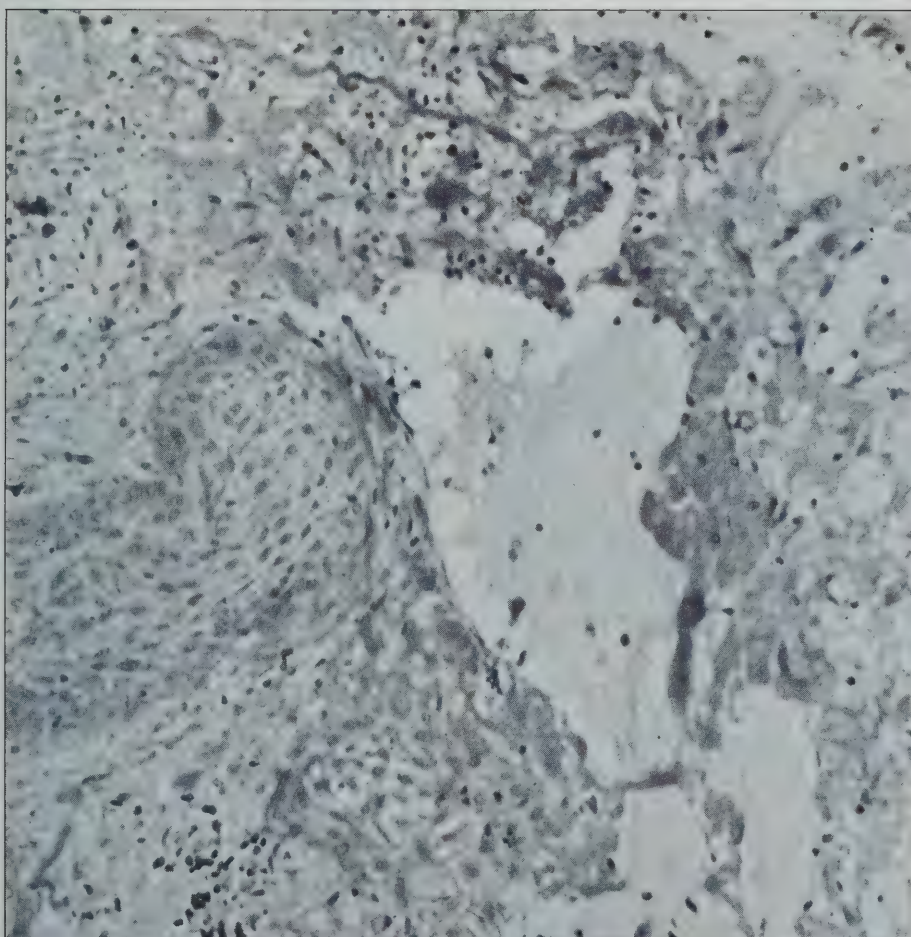


Figure 3. The centre of the granuloma shows interstitial pooling of mucus secretory material bordered by hyperplastic epithelium and chronic inflammation dominated by macrophages.

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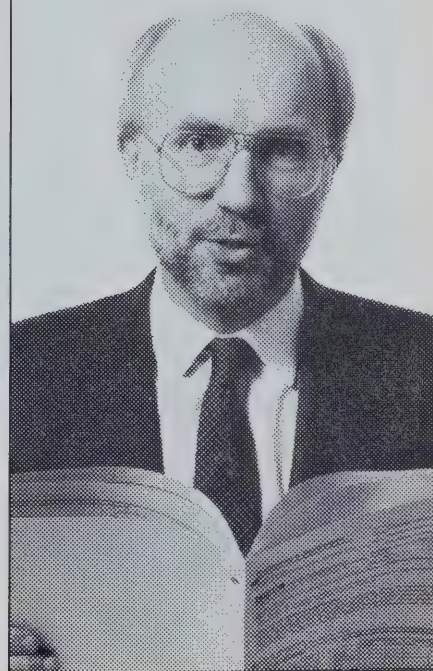
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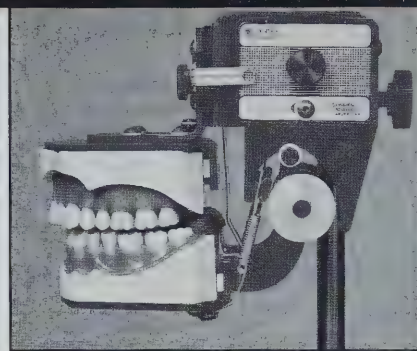
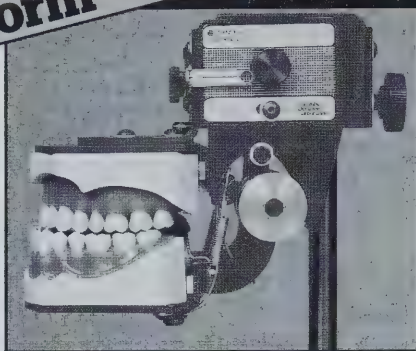
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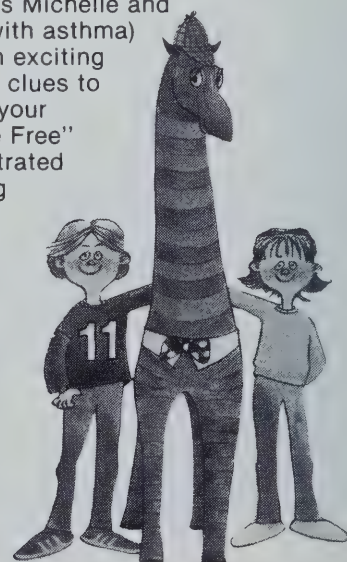
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CORRECTION OF MANDIBULAR PROGNATHISM IN OSTEOPENIA IMPERFECTA TARDA A CASE REPORT

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Osteopenia imperfecta (OI) is a disease characterized by varying degrees of osseous porosity and fragility. Bony cortices tend to be thin, containing areas of fibrous tissue

or immature spongiosa. In addition, the cancellous component is delicate and sparse.¹ The bones of affected patients are therefore prone to fracture easily.

Recent studies have shown that osteo-

genia imperfecta consists of four broad clinically distinguishable groups.² Two groups are identified by autosomal dominant inheritance of mild osseous fragility, with variability in the presence or absence of



Figure 1. Marked facial tapering evident on frontal view.



Figure 2. On lateral view, the patient shows marked mandibular prognathism.



Figure 3a. Cephalometric radiograph confirms mandibular prognathism and skeletal dysplasia. Note the degree of maxillary dental compensation.

opalescent dentine (OI tarda). A further two divisions are denoted by autosomal recessive inheritance of extreme bone fragility (OI congenita). Trait penetrance in all four groups is variable.

In OI tarda, the classic triad of bone fragility, blue sclerae and deafness were described.³ Patients rarely have all three symptoms. They are likely to develop symptoms later in childhood, retain a normal stature with few fractures, have blue sclerae and may experience deafness.

Generally, fragility manifests as fractures occurring during childhood, secondary to trauma or even forceful muscular contraction.⁴ Numerous repeated fractures of the legs can create characteristic "saber shins", with diminished stature. Many fractures occur subclinically, without attendant clinical features such as soft tissue injury or pain. Fracture incidence decreases with age, although there is a reported rise in females, following menopause.⁵ Fractures tend to heal quickly and well, with newly formed bone of equally poor quality.⁶ The rare patient will present with a healing callus that is over-abundant and mimics osteosarcoma or osteomyelitis. In most instances, the callus resolves spontaneously,⁷ although transformation to osteosarcoma has been observed.¹

The bluish sclerae found in these patients is caused by visibility of underlying choroidal pigment. Due to various collagenopathies,⁸ abnormal intercellular matrix is produced, resulting in a thinner, more translucent scleral layer.⁹ However, considerable variation exists clinically in the degree of blue scleral colour noted.

Deafness is generally unpredictable in onset and progression. When seen, it is most often in the second or third decade.⁴ In OI tarda, this defect can take the form of a conductive, sensorineural or mixed hearing loss. Otologic findings usually implicate specific middle and inner ear pathology, rather than the rare coincidental association of otosclerosis and OI in the etiology.¹⁰ Progressive deafness occurs in only 50-60 per cent of reported cases.¹¹

Horizontal, parietal, occipital and frontal enlargement of the head create a typical mushroom shape. The resultant widened inter-temporal distance combined with significant tapering of the face, create a characteristic triangular facies.⁷ One case of marked maxillary retrusion and mandibular prognathism has been reported previously.⁴

Dentinogenesis imperfecta can affect the primary dentition only, the secondary dentition, or both. Primary teeth are involved in 80 per cent of cases, with the permanent dentition affected 35 per cent of the time. Affected teeth are translucent, brownish and soft, and the enamel easily chips off from the dentino-enamel junction. Pulp canals are often obliterated, with accompanying short, stumpy roots.¹²

Other possible clinical features include joint hypermobility and dislocation, secondary to defective tendinous and ligamentous collagen.^{4,7} Skeletal muscle is often functionally impaired due to abnormal electrical reactions in the muscle. Kyphoscoliosis and hernias (inguinal, umbilical, diaphragmatic) are not uncommon. There can be mitral valve involvement,¹³ including torn

chordae and prolapsed cusps.¹⁴ Premature arteriosclerosis and emphysema have been noted.¹⁵ The underlying collagenous defect also results in thin, translucent skin.¹⁵ Capillary fragility accounts for the easy bruising noted in many patients.⁷ In addition, there is evidence of abnormal platelet function.

Although no specific biochemical defect has been elucidated, strong evidence suggests that there is disordered quantitative or qualitative regulation of collagen synthesis. In one such instance, the defective primary structure of Type I pro-collagen causes slowing of its excretion from the cell.⁸ In another, the collagen alpha-2 chain is malformed. These disorders of collagen synthesis render the various mesenchymal cells, such as osteoblasts and fibroblasts, incapable of producing normal intercellular substances. No effective means of systemic treatment has yet been devised.¹⁶

Differential diagnosis must include scurvy, progeria, achondroplasia, osteoporosis of aging, idiopathic juvenile osteoporosis and cleidocranial dysostosis. Clinicians must be wary, as considerable clinical similarity can exist among these syndromes. More rarely, especially in children, leukemia, thyrotoxicosis or Cushing's Syndrome causing osteoporosis must be ruled out.

CASE REPORT

A pleasant, 21-year-old male presented to our clinic requesting an esthetic and functional correction of a markedly protrusive mandible and concomitant masticatory difficulty. He was in excellent general health

PATIENT: NK
Prognathic Facial Type snb 90 deg.
Straight Profile Type sna 80 deg.
Skeletal Dysplasia anb 10 deg.

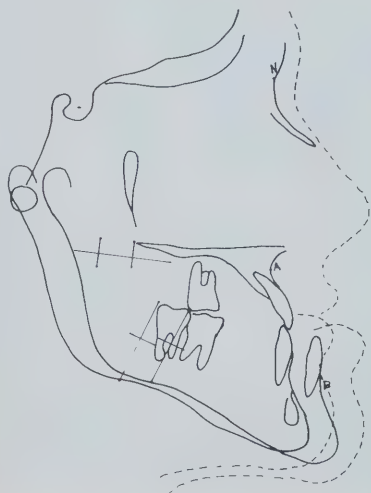


Figure 3b. Cephalometric analysis demonstrating planned mandibular correction.

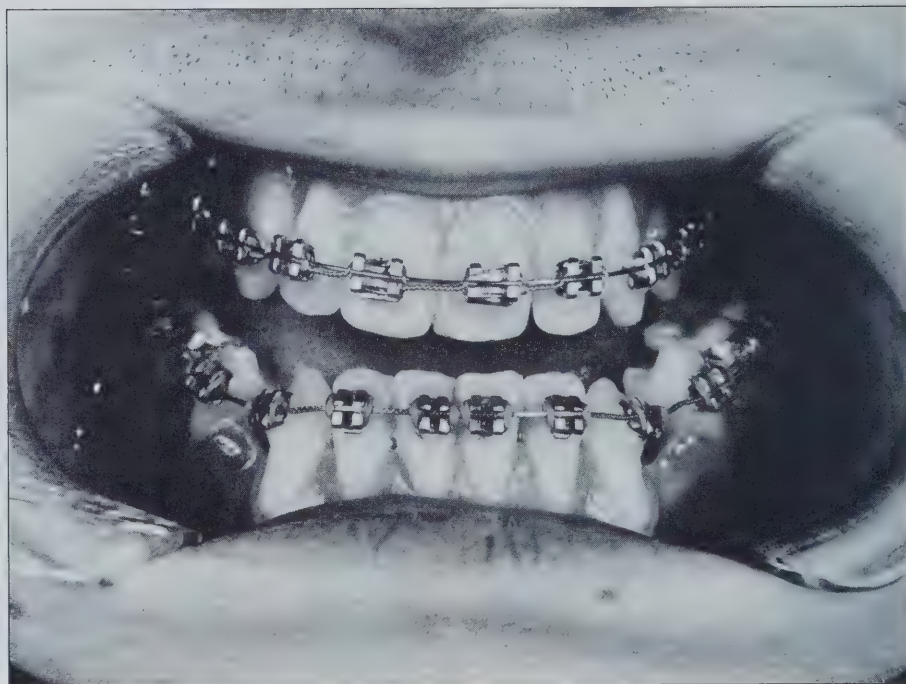


Figure 4. Patient in centric occlusion with marked apertognathia.

and was not taking any medication. He denied having any allergies. Functional enquiry was non-contributory.

The patient's medical history revealed numerous yearly fractures of the extremities during childhood. Healing of each fracture after orthopedic intervention was uneventful, with no exuberant callus formation. He sustained fewer fractures after reaching his mid-teens. His family history revealed that his grandfather and mother had significant problems with numerous fractures and deafness. An uncle also had multiple fractures during childhood. All other family members, including a brother and a sister, were asymptomatic. No previous problems with excessive sweating, unexplained high temperature, local or general anesthetic, had been encountered.

Physical examination revealed a thin, afebrile male of normal stature, with blue sclerae. He had long, slender limbs, with no bowing of the legs. There was some demonstrable joint hypermobility. Rinne and Weber testing revealed no gross hearing loss. Heart and respiratory sounds were normal. The skin had normal texture and consistency, with no evident ecchymoses. Old surgical scars on the extremities were well healed.

The patient had a characteristic widening of the intertemporal distance, with concomitant facial tapering (Fig. 1). Gross mandibular prognathism was evident from anterior and lateral perspectives (Fig. 2). This was confirmed by cephalometric analysis (Figs. 3a and b). No facial asymmetry was noted. Intraoral examination revealed apertognathia, extending from the second

molars bilaterally (Fig. 4). No teeth exhibited the characteristics of dentogenesis imperfecta and no macroglossia was noted.

All values for CBC, differential, coagulation screen and urinalysis were within normal limits. SMA-12 analysis was normal except for a slight elevation in alkaline phosphatase of 101 units (normal 30-95 units).

Surgical Procedure

The patient was taken to the operating room, where an atraumatic nasotracheal intubation was performed after pentothal/forane induction. Bilateral vertical oblique osteotomies of the ramus and coronoidectomies were performed through a Risdon approach. No circumramus wires were placed. Stabilization of the final occlusion was achieved via intermaxillary fixation and skeletal fixation (using circummandibular wire and anterior nasal spine wire). Careful layered closure of deep tissues and skin was performed to avoid scar formation. Intraoperative blood loss was minimal.

Postoperatively, the patient was placed on a regimen of antibiotics and steroids. The recovery period was uneventful. Intermaxillary fixation was maintained for eight weeks. The patient underwent postoperative jaw physiotherapy and final orthodontic alignment. He was quite pleased with the considerable functional and esthetic improvement (Figs. 5a and b and 6).

Discussion

A major anesthetic consideration in OI patients is the increased tendency to develop malignant hyperthermia.^{17,18} Our patient

was anesthetized in the usual manner because no history or clinical evidence suggested otherwise. Additional laboratory tests, such as elevation of creatinine phosphokinase (CPK) and reduction in platelet ATP after halothane exposure can point to increased risk in dubious cases.

Due to the extent of the desired retrusive mandibular movement (approx. 1.1 cm), the vertical oblique osteotomy of the ramus was the surgical procedure chosen. We preferred coronoidectomy to "Inverted L" osteotomy, to minimize restrictive effects of temporalis muscle pull and to decrease the possibility of untoward intraoperative fracture. Wide exposure of the lateral aspect of the ramus was needed, so the extraoral approach was used. Based on the patient's past surgical experience, excess scarring was not expected. We feel that the ramus flaring associated with this osteotomy partially camouflaged the patient's tapering face, enhancing the final cosmetic result.

This case emphasizes the need to thoroughly consider all the attendant clinicopathologic features and variations of osteogenesis imperfecta, prior to undertaking any major surgical intervention on affected patients.

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Figures 5a and b. Marked esthetic improvement is noted on frontal and lateral views.

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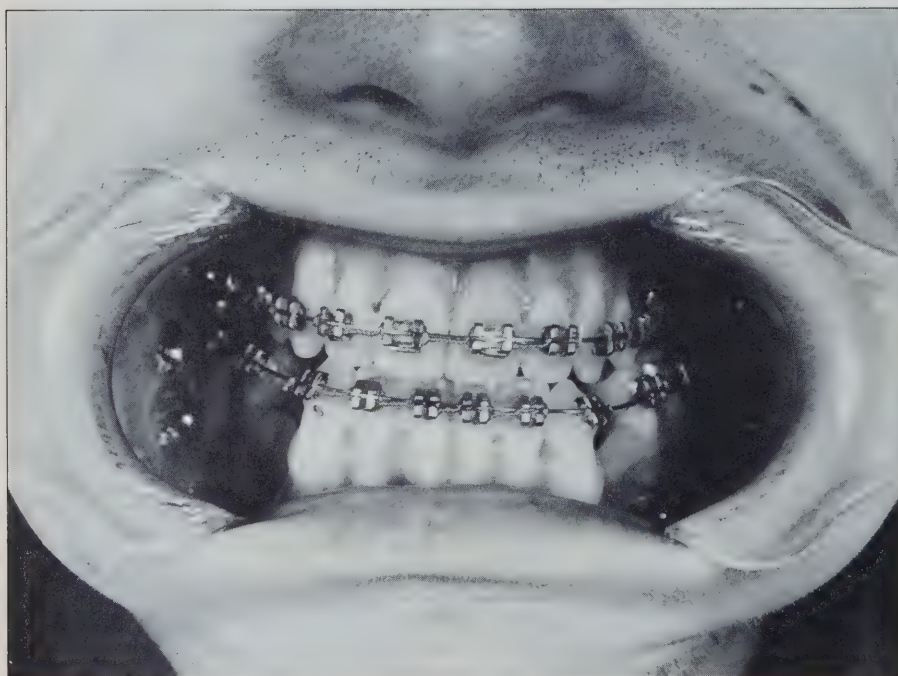


Figure 6. Correction of the patient's open bite noted postoperatively.

Loss of
Coordination

Double Vision

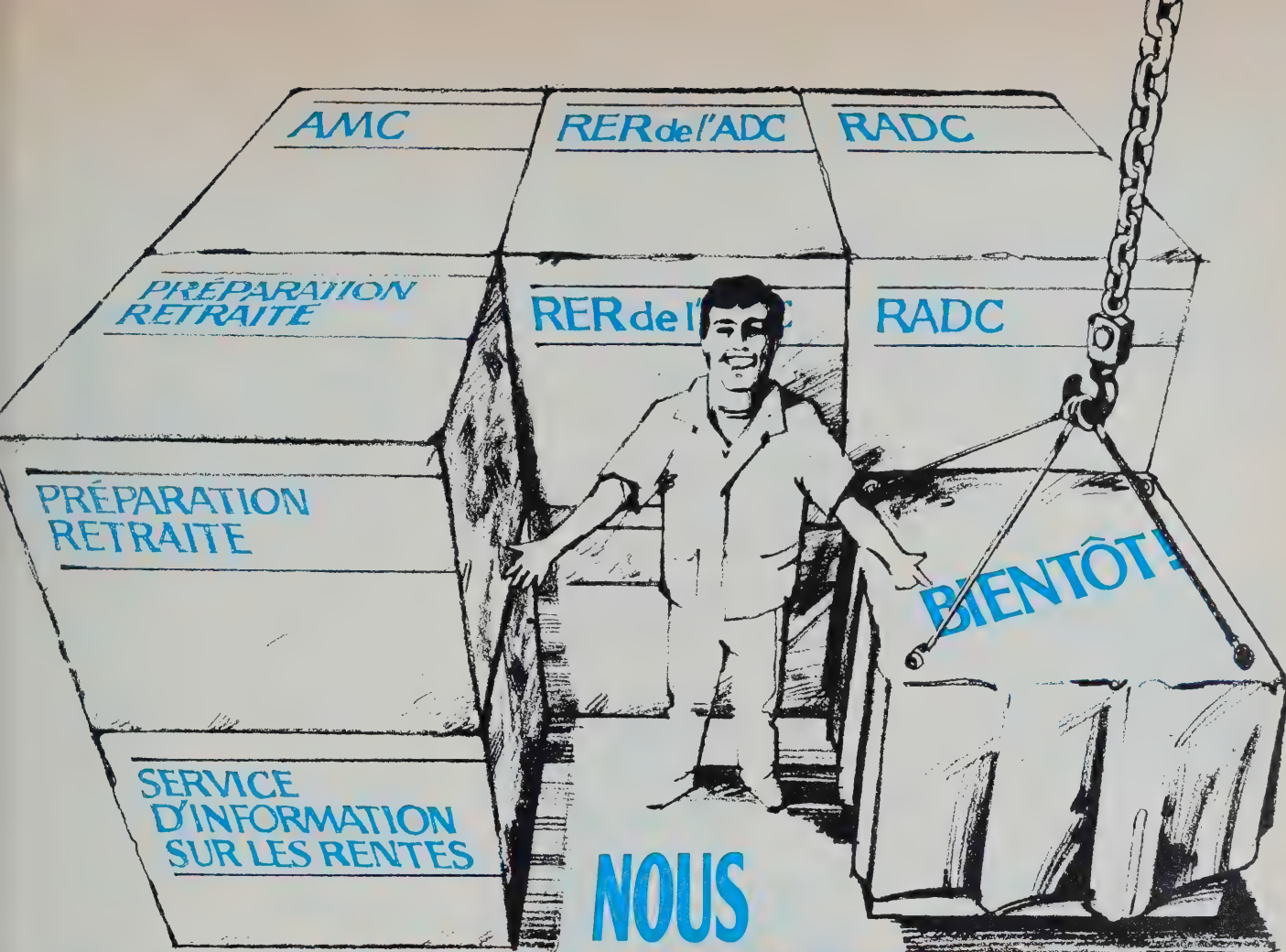
Loss of Balance

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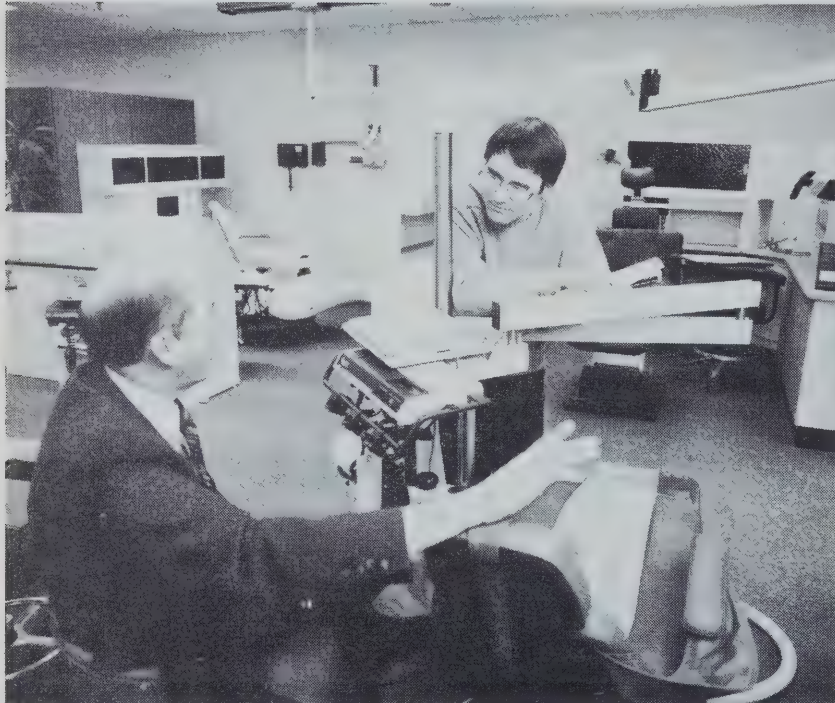
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EFFETS SECONDAIRES DE LA RADIOTHÉRAPIE SUR LES TISSUS BUCCAUX DE L'ENFANT

Rola Kanafani, DDS*
Montréal, Québec.

INTRODUCTION

La radiothérapie est utilisée d'une façon routinière pour le traitement des tumeurs malignes incluant les leucémies. La radiosensibilité des tissus et des cellules varie suivant leur type et leur âge: les tissus embryonnaires et les tissus en croissance active sont plus sensibles que les tissus matures correspondants. L'enfant atteint de tumeur maligne et soumis à un traitement radiothérapique est donc plus vulnérable que l'adulte, et les effets secondaires à une irradiation observés au niveau de la cavité buccale sont parfois impressionnants, même si les doses appliquées ont été bien choisies et correctement fractionnées.

Nous avons voulu dans cet article en passer une revue, à l'usage des professionnels qui s'intéressent aux lésions bucco-dentaires après traitement des cancers de la tête et du cou par radiothérapie.

ABSTRACT

Radiotherapy is used regularly to treat malignant tumors including leukaemia. The radiosensitivity of the tissues and the cells varies according to their type and age; embryonic tissues and tissues in full growth are more sensitive than their adult counter-

parts. A child with a malignant tumour is therefore more vulnerable than an adult when receiving radiotherapy, and the side effects of the radiations that can be observed in the oral cavity are sometimes awesome, even if the doses applied were well chosen and correctly divided.

Here is a review of the matter for professionals concerned with buccodental lesions after treatment of head and neck cancers by radiotherapy.

I - EFFETS DE LA RADIOTHÉRAPIE SUR LE SQUELETTE FACIAL

Chez l'enfant qui est par définition en pleine croissance, les irradiations provoquent plus de dommage au niveau du squelette facial que des tissus mous. La sensibilité d'un enfant aux irradiations a été estimée 25 à 30 pour cent plus importante que celle de l'adulte, à cause de l'activité métabolique qui correspond à la période de croissance comprenant l'enfance et la puberté. Tous les tissus ont encore un caractère embryonnaire. La peau et les muqueuses ont un pouvoir de régénération élevé par rapport à l'os dont les lésions sont donc plus marquées.

* Article de revue rédigé dans le cadre de la spécialisation en pédiodontie. Faculté de Médecine dentaire, Université de Montréal et Service dentaire de l'hôpital Ste-Justine.

L'os, de plus, absorbe plus de radiations, ce qui aggrave sa réponse^{1,2}.

Des études faites chez la souris et chez le rat, ont montré que des radiations de 5000 rad (appliquées à la souris), provoquent une inhibition de l'ossification. Vingt-quatre heures après l'exposition aux irradiations, l'activité ostéoclasique est augmentée. Les ostéoblastes diminuent en taille et en nombre, et les éléments hématopoïétiques s'atrophient dans les cavités médullaires. Les cartilages de croissance sont atteints³.

Le retard de croissance est observé chez l'enfant à un dosage de 3000 à 4000 rad et varie suivant l'âge. Certaines régions sont particulièrement vulnérables même à faible dose. En effet, des dosages qui ne produisent même pas d'érythème cutané sont capables d'affecter les centres de croissance cartilagineux. Ainsi, des doses de 400 à 440 rad peuvent affecter le condyle⁴, d'une manière irréversible. Son altération peut entraîner une modification de la croissance de la mandibule et du squelette facial dans son ensemble. L'irradiation d'un seul condyle provoque une modification unilatérale. La partie irradiée est hypoplasée, et cette hypoplasie génère des perturbations occlusales. Par contre, lorsque les deux condyles reçoivent des radiations, il s'ensuit une micrognathie symétrique avec rétrusion mandibulaire donnant à l'enfant un faciès d'oiseau⁵.

Les hypoplasies observées au niveau du maxillaire supérieur sont moins impressionnantes que celles observées au niveau de la mandibule. D'après certains auteurs, la croissance verticale et sagittale du maxillaire en développement est régularisée par les sutures osseuses et par le septum nasal. L'hypoplasie du maxillaire supérieur et de l'os zygomatique s'accompagne d'une diminution de la hauteur alvéolaire et d'une perte de la densité de l'os cortical⁶.

Les irradiations provoquent, en résumé, une stérilisation des zones d'accroissement qui deviennent non fonctionnelles. L'arrêt de croissance est responsable d'anomalies osseuses qui incluent micrognathie, latérogathie, rétrognathie, etc. . .

Lorsqu'un os, adulte ou en croissance, préalablement irradié, est soumis à un facteur déclenchant comme une avulsion dentaire par exemple, on observe une ostéoradionécrose. L'irradiation modifie la qualité de la vascularisation, ce qui diminue le potentiel de défense de l'os. L'ostéoradionécrose est presque toujours mandibulaire. Elle commence par une dénudation qui laisse apparaître l'os, blanchâtre, comme du sucre mouillé. Elle s'accompagne de douleurs vives et souvent d'un trismus qui évolue en s'aggravant. À cause de sa structure osseuse différente, le maxillaire supérieur est plus rarement atteint. La zone nécrotique est plus limitée. La séquestration se fait plus facilement et avec un pronostic meilleur⁷.

II – EFFETS DE LA RADIOTHÉRAPIE SUR LES TISSUS MOUS BUCCAUX

Les tissus mous buccaux peuvent présenter des lésions cutanées, muqueuses ou musculaires après irradiation.

La peau devient sèche, colorée d'un érythème avec pigmentation et desquamation, et qui s'accompagne d'une chute des poils et des cheveux. Dans les cas graves, l'atrophie extensive se complique d'une nécrose aiguë des couches profondes. La fibrose de radiation est la conséquence classique d'un traitement par radiothérapie. Certains auteurs ont démontré que la peau irradiée devenait plus susceptible à l'apparition d'un épithélioma.

Une sialorrhée transitoire provoquée par les mets excitants fait place à une sécheresse de la muqueuse buccale. La mucite qui se développe rapidement peut aboutir à une nécrose tardive. L'application de 1250 à 1500 rad provoque la première semaine un érythème oedémateux. Au milieu de la deuxième semaine, après l'application approximative de 2500 rad, des taches blanchâtres apparaissent sur la muqueuse des lèvres, des joues et de la langue. Langue

et muqueuse buccale deviennent ensuite hypersensibles au chaud et au froid. Après 4 à 5 semaines de traitement, lorsque la dose appliquée atteint 4500 à 5500 rad, on observe des ulcérations labiales et une chéilite angulaire.

La gencive n'est pas épargnée. Elle présente un oedème puis s'ulcère, avec des hémorragies spontanées. Le tableau clinique peut se compliquer d'amygdalite et d'angine pharyngienne.

La qualité des techniques utilisées permet d'éviter la sclérose des muscles ptérygoïdiens. Par contre, l'atteinte de la région rétromolaire et de la commissure intermaxillaire peut générer un trismus réversible⁸.

III – EFFETS DE LA RADIOTHÉRAPIE SUR LES GLANDES SALIVAIRES

Les glandes salivaires sont très susceptibles aux radiations. Après une hypersialorrhée transitoire, s'installe une xérostomie qui rend la cavité buccale douloureuse. Le flot salivaire est diminué et la salive présente aussi une modification qualitative. Sa viscosité est augmentée et son pH devient plus acide. Les radiations modifient la capacité de réabsorption des tubules; la membrane cellulaire s'altère et la concentration du sodium salivaire se trouve augmentée. Les acini des glandes séreuses seraient plus affectés que ceux des glandes muqueuses⁹.

Une étude effectuée chez 86 patients atteints de maladie de Hodgkin a montré que 75 pour cent d'entre eux avaient perdu 90 pour cent de leur fonction salivaire après 4 mois de radiothérapie. Le flot salivaire était réduit de 54 pour cent après la première dose d'irradiation, de 65 pour cent après 16 semaines, et 75 pour cent des patients ne présentaient plus que 10 pour cent du flot salivaire normal quatre ans après le début de la radiothérapie¹⁰.

La qualité du régime alimentaire constitué d'aliments mous chez ce type de patients contribue aussi à réduire la quantité du flot salivaire. Les dents se recouvrent ainsi d'un matériel collant très organique qui est un parfait substrat pour les bactéries cariogènes.

Si les glandes salivaires ne sont pas dans le champ de rayonnement, la salive reste anormale et conserve ses propriétés protectrices pour l'émail dentaire.

IV – EFFETS DE LA RADIOTHÉRAPIE SUR LA DENTITION

La radiothérapie agit sur le système dentaire de l'enfant selon deux types d'atteinte. D'une manière indirecte, selon le schéma qui a été décrit précédemment: l'atteinte des glandes salivaires, en induisant une asia-

lie, rend les dents vulnérables à la carie. D'une manière directe, en interférant avec la croissance dentaire: les dents présentent alors des anomalies de taille ou de structure.

Les effets indirects

On observe chez un patient irradié une aggravation des caries déjà existantes. Cependant, dès 1939, le syndrome proprement dit des "caries rampantes après irradiation", a été détaillé. Les caries de radiation diffèrent considérablement par leur apparence clinique et la rapidité de leur progression, des caries des surfaces lisses habituelles¹¹. Les incisives mandibulaires sont les premières affectées, puis les autres dents du maxillaire inférieur sont atteintes graduellement d'avant en arrière. La lésion initiale est localisée au collet de la dent et s'étend autour de la zone cervicale et progressivement en profondeur jusqu'à ce que la dent se fracture¹². Au maxillaire supérieur, l'évolution est un peu plus retardée mais se fait plus brutalement.

Au niveau des molaires, les caries sont plus généralisées et s'étendent sur toute la surface de la dent. Un changement de la translucidité et de la couleur de l'émail s'accompagne d'une augmentation de sa friabilité, et de fracture coronaire à la mastication. Une douleur d'hyperesthésie dentinaire caractérise les caries initiales. Les pulpites suivies de gangrène pulpaire sont ensuite responsables d'accidents inflammatoires osseux conduisant cliniquement à une ostéoradionécrose.

Ces "caries des rayons" s'expliqueraient par des changements quantitatifs et qualitatifs de la salive. On a observé aussi que ce type de patients avait tendance à absorber des sucreries à base de fruits, pour pallier à leur sécheresse buccale et pour modifier le goût métallique dont ils se plaignent. Cette addition sucrée à leur régime alimentaire contribue à l'aggravation de leur état dentaire¹³. Enfin, trois mois après une irradiation, les lactobacilles et les *Candida albicans* sont augmentés ainsi que les streptocoques mutans dont le taux passe de 0.6 à 2.4 pour cent, à 25 pour cent. Ce changement se produit avant le développement de lésions carieuses cliniquement observables¹⁴.

Certaines mesures préventives sont conseillées pour ralentir l'installation de la "carie des rayons". L'application quotidienne pendant cinq minutes d'un gel à 1 pour cent de fluorure de sodium en addition avec de la chlorhexidine, diminue la quantité de streptocoques mutans. Cependant, la chlorhexidine a comme effet secondaire de colorer les dents en jaune-brun et d'irriter la muqueuse buccale. Bien qu'utilisée d'une manière routinière en Europe, elle n'est pas encore acceptée par l'administration de "V.S. Food and Drug". Une

application topique à 1 pour cent de fluorure de sodium en adjonction à 1 pour cent de digluconate de chlorhexidine quatre fois par jour, complétée par un rinçage quotidien avec une solution contenant du fluorure de sodium à 0.05 pour cent et de la chlorhexidine à 0.2 pour cent, prévient la carie et peut même contribuer à la reminéralisation de surface. On recommande aussi un dentifrice à haute teneur en fluor (1350mg/100g), en instruisant le patient des règles d'une hygiène buccale minutieuse¹⁵.

Les effets directs

Les irradiations de la tête et du cou chez l'enfant, interfèrent avec la croissance et le développement normal de la région irradiée ainsi qu'avec l'éruption dentaire. Les lésions qui vont de l'anodontie au nanisme coronaire et radiculaire, dépendent du stade de développement dentaire au moment du traitement. Certains facteurs les influencent et les modulent: l'âge du patient et sa sensibilité aux radiations, l'intensité de celles-ci et le temps d'exposition, l'intervalle entre les temps d'exposition¹⁶.

Des observations datant du début du siècle signalent un sous-développement du crâne après irradiation ainsi que des hypoplasies dentaires dans la zone irradiée¹⁷. La formation de dentine est interrompue et les odontoblastes dégénèrent¹⁸. Les dents des enfants dont la mère a été irradiée présentent aussi des retards d'éruption¹⁹.

On peut faire des corrélations entre la chronologie du développement dentaire et le type de séquelles dentaires qui risquent de résulter du traitement. Suivant la dose et le moment d'application de celle-ci, le traitement entraîne des lésions dont le degré de gravité est différent. Une forte dose peut induire une agénésie, en particulier des deuxième molaires, si elle est appliquée au stade primaire du développement dentaire. Une dose plus modérée n'entraînera qu'une hypoplasie. Suivant le stade de croissance dentaire au moment de l'exposition, on peut ainsi observer une hypoplasie de la couronne et de la racine, ou de la racine seulement. Si un enfant à un stade de croissance normal est irradié, par exemple, à l'âge de trois ans et quatre mois, seule la formation des racines sera affectée. Les dents resteront fixées aux maxillaires par un trousseau fibreux dérivé du sac folliculaire.

La date d'éruption peut aussi être perturbée par les radiations. L'éruption est parfois prématurée, dans le cas d'une irradiation de faible dosage, ou au contraire retardée.

Lorsque les dents possèdent des couronnes avec des anomalies de forme, avec ou sans hypoplasie ou dilacération radiculaire, les dents peuvent rester incluses définitivement²⁰. Enfin, si les dents sont

complètement formées et calcifiées, les lésions se localisent au niveau des odontoblastes qui apparaissent non fonctionnels.

La dent devient alors plus vulnérable. La carie progresse rapidement, la capacité de l'odontoblaste de sécréter de la dentine scléreuse ou de la dentine tertiaire réactionnelle étant perturbée.

V – CONCLUSION

Les tumeurs malignes de la tête et du cou restent exceptionnelles dans le groupe d'âge qui intéresse les pédodontistes. Cependant, lorsqu'un enfant est traité par irradiation, les effets secondaires observés sont plus dramatiques que chez l'adulte. En effet, l'arrêt de croissance osseuse, les hypoplasies ou les agénésies dentaires sont des problèmes majeurs qu'il est difficile d'éviter si l'on veut augmenter le pronostic de survie. Les modifications de la qualité de vie à la suite de la xérostomie, comme la "carie des rayons", la perte du goût et de l'appétit, deviennent alors des incidents négligeables, comparés aux séquelles osseuses esthétiques et fonctionnelles que laisse chez l'enfant un traitement radiothérapique.

Remerciements

Le Dr Christiane Mascrès (DrCD, PhD), professeur titulaire, Faculté de médecine dentaire, Université de Montréal, doit être remerciée pour avoir révisé le manuscrit.

Résumé

Les effets secondaires à un traitement radiothérapique sont présentés chez l'enfant.

Le squelette facial est modifié par l'atteinte des zones de croissance et spécialement du condyle. Selon qu'elle est unilatérale ou bilatérale, l'irradiation induit une latérogénathie ou un faciès d'oiseau. Les tissus mous sont atteints moins sévèrement. Une mucite suivie d'une fibrose est d'apparition constante après irradiation. Les glandes salivaires deviennent non fonctionnelles entraînant une asialie. La xérostomie conséquente est responsable de la "carie des rayons". Ces caries rampantes peuvent entraîner des lésions périapicales que viendra aggraver une ostéoradionécrose. Des anomalies du développement dentaire comme des agénésies ou des hypoplasies ainsi que des modifications de la date d'éruption dentaire peuvent aussi s'observer chez l'enfant après radiothérapie.

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Announcements

OCTOBER/OCTOBRE

October 9-11: Dental Tecnic '86, International Dental Prosthesis Exhibition. Barcelona, Spain. Contact: Associacio Empresarial de Protesics Dentals de Catalunya, Arago 120, Entalo 2 a, 08015 Barcelona, Spain.

October 12-18: Annual Meeting of the American Academy of Dental Radiology, Miami. Contact: Dr. William Wedge, Medical College of Georgia, Augusta 30912.

October 17: Annual Meeting of the Academy of Dentistry International, Miami. Contact: Dr. Clifford Loader, 7804 Calle Espada, Bakersfield, CA 93309.

October 17-19: Annual Meeting of the American Association of Women Dentists, Miami Beach. Contact: Ms Cheryl Kraus, 211 E. Chicago Avenue, Suite 948, Chicago, Ill. 60611.

October 18: Annual meeting of the Academy of General Dentistry for the Handicapped, Miami Beach. Contact: Dr. David Sager, 514 Humboldt Plaza, Manhattan, KS 66502.

October 18-23: American Dental Association, 127th Annual Session, Miami Beach Convention Centre and Fontainebleau Hilton Hotel. Contact: American Dental Association, 211 E. Chicago Ave., Chicago, Ill. 60611, 312-440-2726.

October 22-25: American Medical Writers Association 1986 Annual conference. Sheraton Palace Hotel, San Francisco, California. Contact: Lil Sablack, Executive Director, American Medical Writers Association, 5262 River Rd. Suite 410, Bethesda, Maryland, 20816, 301-986-0110.

October 22-26: American Society of Dentistry for Children Annual Meeting, Lascallinas, Texas. Contact: Ms C. Teuscher, 211 E. Chicago Avenue, Suite 920, Chicago, Ill. 60611.

October 24-28: The 43rd Annual Meeting of the American Institute of Oral Biology Spa Hotel, Palm Springs, Cali-

fornia. Contact: Executive Secretary, P.O. Box 481, South Laguna, California. 92677.

October 30-31: The Dentist in the Market-Place sponsored by the New Zealand Dental Association, Palmerston North, New Zealand. Contact: The Conference Secretary, P.O. Box 5022, Palmerston North, New Zealand.

October 31-November 1: Professional Development Committee of the Ontario Dental Association and the Ontario Society of Endodontists present the Symposium on Clinical Endodontics. Featured speakers include Drs. H. Trowbridge, D. Aren, R. Burns, S. Cohen, J. Namias, W. Cunningham, J. Schoeffel, A. Machanowicz, M. Fagin and R. Greenfield. Contact: Professional Development, The Ontario Dental Association, 234 St. George St., Toronto, Ont. M5R 2P1 416-922-3900.

NOVEMBER/NOVEMBRE

November 2-8: National Crime Prevention Week. Contact: Pauline Dodds, Coordinator, National Crime Prevention Week, Ministry of the Solicitor General of Canada, Ottawa, Ont.

November 5-7, 1986. Symposium on the Biology of Tooth Movement. Sponsored by the University of Connecticut School of Dental Medicine and the National Institutes of Dental Research, at the University of Connecticut Health Center, Farmington, Connecticut. Contact: Cecile J. Volpi or Valerie Vasquez, at (203) 674-3340. Address: University of Connecticut Health Center, LG006, Farmington, CT 06032.

November 7-9: Myo-tronics Research Inc., presents a seminar entitled "Neuro-muscular Diagnosis and Precision Orthotics". New Orleans. Featured speakers will be Dr. W. Edward Duncan and William Oakes, CDT. Contact: Myo-tronics Continuing Education Programs, 1-800-426-0316.

November 9-15: Fédération Dentaire Internationale. 74th Annual World Dental Congress, Manilla, Philippines. Contact: Philippine Dental Association, Komagong Street/Ayala Avenue, Makati, Metro Manila, Philippines.

November 16-19: Ontario Public Health Association annual education and scientific meeting. The theme is "Acting now - to shape the future". Speakers will include David Suzuki, W. Gifford Jones and Honourable Murray Elston. Contact: George I. Shirton, Public Relations Coordinator, 1335 Carling Avenue, Suite 210, Ottawa, Ont. K1Z 8N8.

November 16-19: The Saul Kamen Seminar on the Dental Management of the Mentally Retarded and the Developmentally Disabled Patient. Teaching Center Auditorium, Long Island Jewish Medical Centre, New Hyde Park, New York. Sponsored by the Dept. of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center, State University of New York, at Stony Brook. \$450 for dentists, \$250 for auxiliaries. Contact: Ann Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York, 11042, 718-470-8650.

November 17-21: Second International Congress on Gerodontology, Stamford-Westin Plaza Hotel, Raffles City, Singapore. Hosted by the Singapore Dental Association. Contact: Organizing Secretary, 2nd International Congress of Gerodontology, Singapore Dental Association, Medical Alumni, 4A College Rd. Singapore 0316, Republic of Singapore.

November 20: Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre, Toronto, Ont. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 21-22: Alberta Academy of General Dentistry, Alberta Society of Occlusal Studies and Multi-disciplinary Dental Study Club are co-sponsoring a seminar on Occlusion in the 80's by Professor Hyman Smukler. Contact: Dr. Henry C. Yu, Suite 1201, 10025 106th Street, Edmonton, Alberta T5J 1G4.

November 25-28: 6th Annual Sports Medicine Seminar "Sports Medicine for All Practitioners", Intercontinental Hotel, Maui, Hawaii. Contact: Dr. Stuart Zeman, Course Chairman, 2999 Regent St., Suite 203, Berkeley, California, 94705, 415-540-8686.

November 27-29: International Implant Seminar, Hong Kong. Co-sponsored by the Canadian Society of Oral Implantology and other international implant groups. Contact: Barbara Cleland, Exec. Secretary, Canadian Society of Oral Implantology, Box 84, Site 7, RR 1, Calgary, Alta. T2P 2G4. 403-284-9767.

DECEMBER/DÉCEMBRE

December 5-8: American Academy of Oral Medecine, Washington, DC. Contact: Dr. N. Ross, 1 Lynn Drive, Randolph, NJ 07869.

December 28-31: Indian Dental Association Conference, India. Contact: Indian Dental Association, M75 Connaught Circus, New Delhi, 110001, India.

1987+

January 3-4, 1987: Academy of Dental Materials Annual Meeting, Walt Disney World Conference Centre, Orlando, Florida. Contact: Sybil Greener, Executive Secretary, Academy of Dental Materials, Dept. of Biological Materials, Rm. 10-019, Northwestern University Dental School, 311 E. Chicago Ave., Chicago, Ill. USA 312-642-9570.

January 5-8, 1987: The Indian Association for Dental Research Workshop-cum-Conference on Fluoride and Dental Health. Madras, India. Contact: Prof. M. Rahmatulla, Convenor, International Workshop-cum-Conference on Fluoride and Dental Health, Dental Dept. Government Kilpauk Medical College Hospital, Madras, 600 010, India.

January 15-18, 1987. 12th Annual Yankee Dental Congress, Boston, Mass. Largest continuing education event in New

England: "Passport to the Future." Contact: The Massachusetts Dental Society, 83 Speen Street, Natick, Mass. 01760-4125, or, telephone (617) 651-7511.

January 29-31, 1987: Miami Winter Meeting, Hyatt Regency Miami. Contact: Dotti DuBreuil, Coordinator, Miami Winter Meeting, 420 South Dixie Highway, Coral Gables, Florida, 33146, 305-667-3647.

February 15-18, 1987, 122nd Chicago Dental Society Midwinter Meeting. Chicago Hilton & Towers. Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Ill. 60602. Or, telephone (312) 726-4076.

March 19-21, 1987: CATCH '87: Computer Applications to Canadian Health. Organized by the College of Family Physicians in Canada. Hilton Harbour Castle, Toronto, Ont. Contact: CATCH '87, 4000 Leslie St. Willowdale, Ont. M2K 2H9 416-493-7638.

May 10-13, 1987: Ontario Dental Association 120th Annual Spring Meeting, Sheraton Centre Hotel, Toronto. Contact: ODA headquarters c/o Diana Thorneycroft, 234 George Street, Toronto, Ont. M5R 2P1.

May 24-28, 1987: CDA/ODQ Convention, Montreal, Quebec. Contact: Canadian Dental Association, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

June 7-11, 1987: 11th Congress, International Association of Dentistry for Children, Toronto, Ont. Contact: Secretariat, 11th Congress, IADC, Dept. of Pedodontics, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto, Ont. M5G 1G6.

June 18-21, 1987: University of British Columbia and the Royal College of Dental Surgeons of B.C. 25 year celebration and 1987 Convention. Contact: College of Dental Surgeons of B.C., 1125 West 8th Ave., Vancouver, B.C. V6H 3N4, 604-736-3621.

June 28-July 1, 1987: Pacific Dental Conference sponsored by the Pacific Dental Federation and the Alberta Dental Association, Banff Springs Hotel, Banff, Alberta. Contact: Dr. J. William Blair, 621 Haralld Building, Calgary, Alta., T2P 0W7.

July 1, 1987: Applications are being accepted for the Postdoctoral Program Dental Diagnostic Science at the University of Texas Health Science Center, at San Antonio, for the class beginning July 1, 1987. Contact: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Dr., San Antonio, Texas, 78284.

October 10-15, 1987: American Dental Association Annual Convention. Las Vegas, Nevada. Contact: ADA, 211 E. Chicago Ave., Chicago, Ill. USA 60611.

September 24-25, 1987: British Society of Oral Medicine meeting, in the Royal College of Surgeons of England, London, England. Contact: Dr. David Wray, British Society of Oral Medicine. Dept. of Oral Medicine and Oral Pathology; High School Yards, Edinburgh, Scotland, EH1 1NR.

October 24-30, 1987: 85th Annual World Dental Congress of the FDI. Buenos Aires, Argentina. Contact: Dr. R.H. Lemme, Congressos Internacionales, SA, Moreno 584-9e, Piso (1091) Buenos Aires, Argentina.

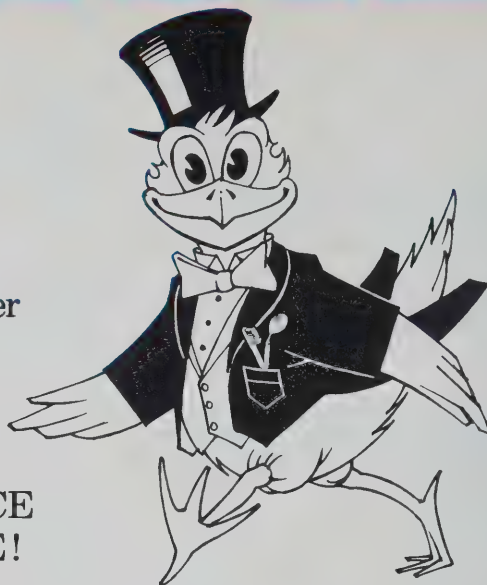


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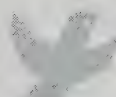
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ALBERTA—Calgary: Excellent opportunity available for one or more dentists to fully operate a modern, busy general dental practice independently with the option to purchase at anytime. Present owner is in graduate school and will not be returning to Calgary. Phone: Dr. J.S. Hubar (205) 991-0391.

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ALBERTA—WETOKA HEALTH UNIT requires a full time Dental Health Supervisor — Responsibilities:

The Dental Health Supervisor is responsible for administration of the Dental Program throughout the Wetoka Health Unit area, as well as service delivery. Duties include: representation on the Health Unit Management Team, Program Planning and Evaluation, Fiscal Management, Physical Resource Management, Human Resource Management, Information System Management, Communications, direct and indirect client service delivery in the Child Dental Health

and the Geriatric Dental Health Service components. **Qualifications:** Minimum qualifications include graduation from a recognized Dental Hygiene program at the baccalaureate level, certification by the Co-ordinating Council of the University of Alberta, and at least two years experience in a community health setting. This position is available **immediately**. **Salary:** Commensurate with experience. Wetoka Health Unit, Wetaskiwin, is a **smoke-free** office building. ***Transportation pool** available from Edmonton to Wetaskiwin. Please apply in writing, stating qualifications and experience to: Mrs. Betty Grayson, Personnel Officer, Wetoka Health Unit, 5610-40 Avenue, Wetaskiwin, Alberta T9A 3E4.

SASKATCHEWAN—Town of Leader needs dentist to work in dental clinic. Two fully equipped operatories and staff. High gross — low overhead. Excellent for new graduates. Call Ken Schmaltz (306) 628-3255.

ONTARIO—**Oral and Maxillofacial Surgeon:** Associateship available in large metropolitan area with potential for partnership. Excellent opportunity. Contact Box 2335.

ONTARIO—Part-time office space available in modern north Toronto location. Ideal for orthodontist. Good referral base in house. Reply including curriculum vitae, to Box 2336.

QUÉBEC—**Poste à plein temps — division de diagnostic/radiologie buccal** (premier cycle) Université McGill, Faculté de chirurgie dentaire: La Faculté de chirurgie dentaire de l'Université McGill est à la recherche d'un professeur adjoint de diagnostic/radiologie buccal; il s'agit d'un poste à plein temps, permanent. Les candidats doivent avoir suivi une formation poussée en sciences diagnostiques dentaires et/ou en radiologie buccale et ils doivent être admissibles aux examens de licence de la province de Québec. La titulaire de ce poste sera chargée d'enseigner la radiologie buccale et le diagnostic buccal au niveau du premier cycle. Il devra également effectuer des recherches dans ces deux domaines. Le salaire sera fonction des compétences et de l'expérience du candidat. Conformément aux dispositions de la Loi canadienne sur l'immigration, cette annonce s'adresse aux citoyens canadiens et aux résidents permanents. Veuillez faire acte de candidature avant le 27 février 1987 et joindre à votre candidature un curriculum vitae et deux lettres de recommandation que vous voudrez bien adresser à: Docteur E.P. Millar, directeur, Comité de

recherche en diagnostic/radiologie buccal, Université McGill, c/o Département dentaire, Hôpital Général de Montréal, 1650 avenue Cedar, Montréal, Québec H3G 1A4.

QUÉBEC—FULL TIME POSITION — DIVISION OF ORAL DIAGNOSIS/RADIOLOGY (undergraduate level) Faculty of Dentistry, McGill University: The Faculty of Dentistry, McGill University, invites applications for a full-time, tenure track position at the Assistant Professor level in Oral Diagnosis/Radiology. Candidates must have successfully completed graduate studies in Oral Diagnosis and/or Oral Radiology, and be eligible for licensure in the Province of Québec. Responsibilities will include undergraduate teaching in Oral Radiology as well as Oral Diagnosis. The successful applicant will be expected to carry out research in these areas. Salary will be commensurate with qualifications and experience. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Applications must be submitted prior to February 27, 1987, accompanied by a detailed curriculum vitae and two references, and should be addressed to: Dr. E.P. Millar, Oral Diagnosis/Radiology Search Committee, Faculty of Dentistry, c/o Montreal General Hospital, Dental Dept., 1650 Cedar Avenue, Montreal, P.Q. H3G 1A4.

HONG KONG—University of Hong Kong — Lecturer in Oral Surgery and Oral Medicine — Applications are invited from suitably-qualified dentists for appointment to a Lectureship in the Department of Oral Surgery and Oral Medicine. Annual salary (superannuable) is on a 13-point scale: HK\$163,200-337,620 (C\$1=HK\$5.60 at July 30, 1986). Starting salary will depend on qualifications and experience. At current rates, salaries tax will not exceed 17% of gross income. Housing benefits at a rental of $7\frac{1}{2}\%$ of salary, children's education allowances, leave and medical benefits are provided. Further particulars and application forms may be obtained from the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London, WC1H 0PF, or from the Appointments Units, Registry, University of Hong Kong, Hong Kong. Closes 15 November 1986.

AUSTRALIA—The University of Western Australia — PERTH — SENIOR LECTURER — RESTORATIVE DENTISTRY (FIXED TERM) DENTAL SCHOOL: This appointment will be for an initial period of three years and may be extended. Applica-

tions are invited from Dental Graduates registerable in Western Australia for appointment as Senior Lecturer within the Dental School's Division of Restorative Dentistry which is responsible for the teaching of Operative Dentistry, Fixed and Removable Prosthodontics and Endodontics. Applicants must hold an appropriate higher qualification, and previous teaching experience at both the under-graduate and graduate levels, particularly in the field of Operative (Conservative) Dentistry, is considered desirable. Evidence of research capability supported by publications should be presented. The appointee will be expected to present lectures, conduct seminars, provide laboratory and clinical instruction in Restorative Dentistry and carry out research leading to publication in areas of interest. Further information may be obtained from Associate Professor D.G. Kailis, Head of Dental School, 179 Wellington Street, Perth WA 6000. Salary Range: \$A37,381-\$A43,568 per annum. In addition, a clinical loading (\$5223 p.a.) is applicable and staff have the right to engage in limited private and consultative practice. **CLOSING DATE:** 31st October, 1986. Benefits include superannuation, fares to Perth for appointee and fully dependent family, and removal allowance. Applications stating full personal particulars, qualifications and experience and the names and addresses of three referees, should reach the Staffing Officer, University of Western Australia, Nedlands, Western Australia, 6009 by the closing date. Conditions of appointment will be specified in any offer of appointment which may be made as a result of these advertisements.

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ALBERTA—Edmonton — Associate required in busy well established general practice. Office newly decorated with immediate patient load. Please contact Dr. M. Blackburn (403) 482-6551.

ALBERTA—Associate required for established efficient, modern dental practice in Lethbridge, Alberta. Excellent opportunity for right person. Please reply to CDA Box #2329.

ALBERTA—Associate required, with definite purchase possibility. Established practice in modern well equipped office shared with other dentist and hygienist. 45 minutes from Edmonton. Present dentist leaving practice due to illness. Phone Dr. Ken Schmidt (403) 349-5071.

SASKATCHEWAN—Town of White-wood, on Trans-Canada Highway. Associate required to assume established dental practice. Please contact Dr. R. Austin, P.O. Box 1578, Moosomin, Saskatchewan S0G 3N0.

ONTARIO—Hamilton — Hamilton dentist requires an associate for a general practice. The patient load is too heavy for one dentist and one hygienist. Your interest will be treated with strict confidentiality. Mark reply CONFIDENTIAL. Reply to Box number 2332.

JAMAICA—Locum of Associateship available in Montego Bay, Jamaica, busy practice. Ideal for experienced, retiring dental surgeon who would like a cultural and new practice experience. Please call 416-727-6891.

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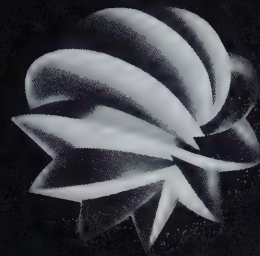
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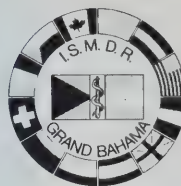
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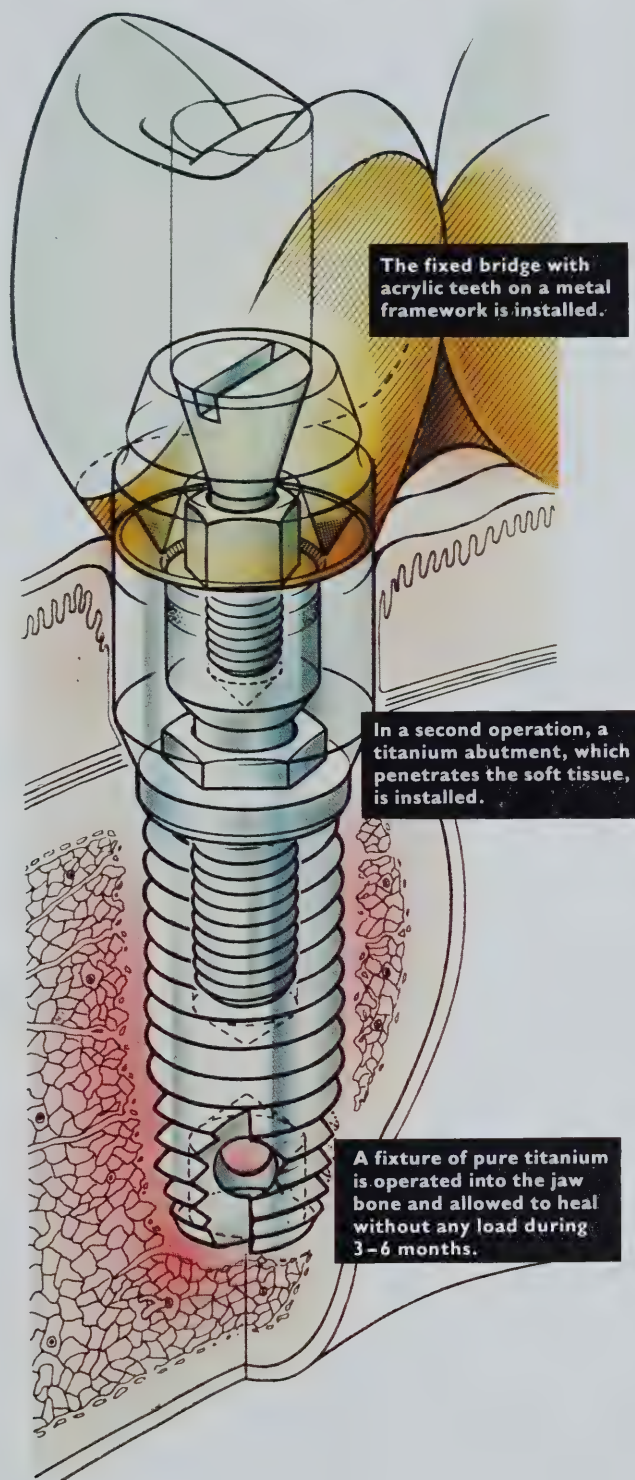
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CDA Convention
Highlights

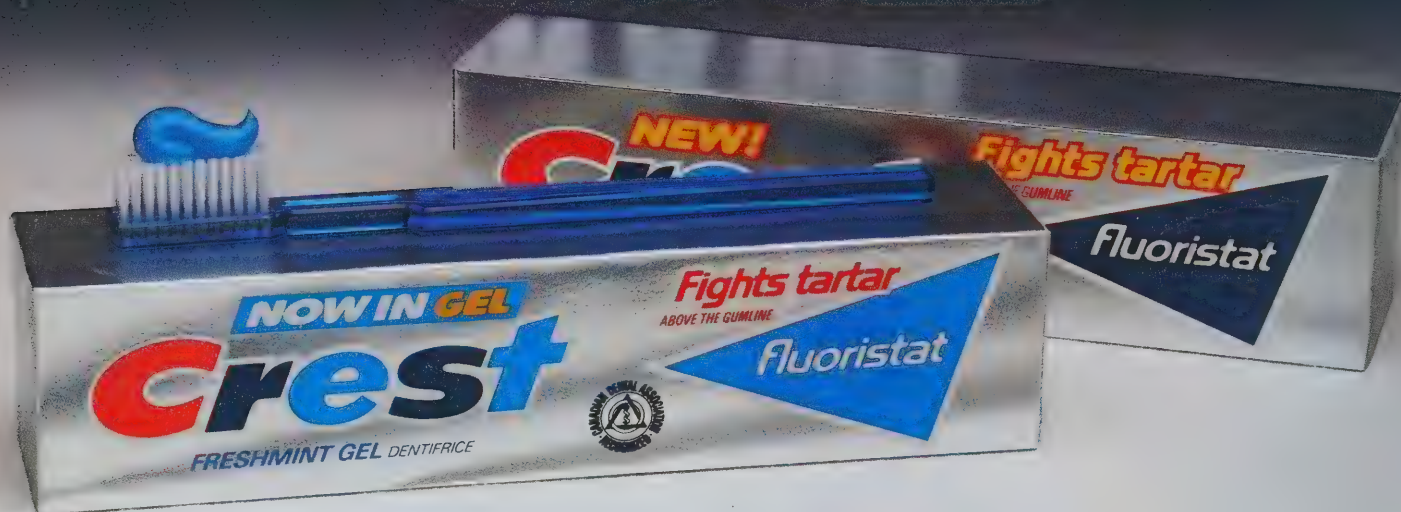
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JOURNAL

Canadian Dental Association
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Halifax Town Crier Peter Cox added a memorable dash of color and tradition to the opening ceremonies at the CDA Convention in Halifax.

Photo: Carolyn Hackland

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EDUCATING WITH EASE

As most of our readers are probably aware, the Canadian Dental Association has just completed its annual convention in Halifax. As usual, this "post convention" issue contains some of the highlights.

One of these highlights was the very successful scientific program. Naturally, the scientific program is the most visible and necessary aspect of any dental convention. After all, the scientific program contains (or should contain) a strong element of "continuing education" for the dental practitioner.

However, in a short presentation to delegates prior to one of the luncheons in Halifax, Dr. Ian Vogan, this year's convention chairman, made another observation which bears repeating. Dr. Vogan pointed out that the social events at a convention provide an important element all their own. The American Dental Association annual meeting does not provide its delegates with a social program, and while this meeting is consistently well attended and provides an excellent opportunity for education, one cannot help but wonder if an educational opportunity should be all that a convention provides to its delegates.

From the time we are kindergarten tots, we are all consistently taught that "learning can be fun." Cannot fun be learning too? In a setting such as a professional convention, the social element can provide delegates with a unique opportunity: to see their colleagues not just as colleagues, but as friends.

A good convention, (and the one in Halifax would qualify) offers its delegates not just education, but relaxation. While there are so many organizations offering continuing education courses to the practicing dentist, and so many ways to stay current in the profession (reading, belonging to study clubs etc) only a convention setting offers the dentist a vital combination of learning and leisure.

Dentistry has been shown in studies to be a somewhat isolated and lonely profession, particularly the once traditional solo practice. Often the practitioner may relate well to patients and to colleagues on the subject of dentistry; but what about relating to colleagues on the human level?

A convention like the one in Halifax, which provided delegates with education and ease in the same setting, brings the dental practitioner in contact with his/her colleagues in the best possible way.

There is an old saying that to make a friend, you must be a friend. But you can't be a friend to a fellow practitioner in Nova Scotia, if your practice is in Vancouver. Unless, of course, you attend a yearly convention — or two. To make a friend you must be a friend, and be willing to make the offer of friendship to a fellow practitioner in a social, educational and companionable setting, such as that offered by a national, professional convention. No matter what the setting: Halifax, Vancouver or Inuvik, a convention at its best should strive to appeal to the "total dentist" — the health care provider and the human being behind the white lab coat.

The latest CDA convention in Halifax did that successfully. All the ingredients were there — a full and impressive scientific program, an entertaining and appealing social program and even a unique program designed especially for children. The delegates in attendance had a whale of a time — and were successfully educated to boot. Some friends were made, and some learning was done, but these aspects were not made to be mutually exclusive. One can, after all, learn from a friend as well as from a professor — whether in a ballroom or a classroom.

A convention, such as the one in Halifax, provides an ideal mixture of "ballroom" and "classroom". It's an ideal place to make a friend, and to be a friend. The next time you choose a convention over a continuing education course, think of it in all of its aspects — and bring a friend.

Carolyn Hackland
Editor, JCDA

MORE DENTAL MATERIALS BECOME TAX EXEMPT

The Canadian Dental Association, through the work of its Taxation Committee, particularly the work of Dr. Robert Hicks, Chairman of that committee, has successfully had the federal sales tax removed from materials used in dental reconstructive procedures and materials and appliances used in orthodontic treatment.

The following is an updated and complete list of materials and appliances which are now exempt from federal sales tax. (French speaking readers, please note that the official translation of the terminology used for these materials is unavailable from the federal government at this time. The list will be reprinted in French in its entirety, once the terms become available in translation.)

Exempt Dental Materials for use in the Manufacture of Artificial Teeth (III/VIII/5)

Acrylic resin materials
Artificial teeth
Composition metals
Crown and bridge repair materials
Denture relining materials
Gold – dental casting
– dental alloy solder
– foil and wire
Pins, posts, screws
Porcelain material and
Surgical arch bars and wire ties

Exempt Dental Materials for use in Reconstructive Surgery (III/VIII/19)

Amalgam (and other metal) alloys
– caps
– pellets
– powder
Calcium hydroxide (base/liner composition)
Cavity liners
Cavity varnishes
Composition filling materials
Composite luting (cement)
Crowns – aluminum and plastic
Cyanoacrylate (tissue adhesive solution)
Dental bases and cements (not including denture creams and adhesives necessary for the proper application of dentures)
Glass ionomer (cements)
Gutta Percha points
Mercury
Pit and fissure sealants
Polishing compounds
Polycarboxylate
Resins (cements)

Root canal fillers, sealers and cements
Silicate cements and filling materials
Tooth stains

Waxes – casting
– impression
– inlay/sticky/utility

Zinc oxide eugenol (base/temp. restoration or cement) and

Zinc phosphate (cements)

Exempt Dental Materials for use in the Manufacture of Artificial Teeth and/or Reconstructive Surgery (III/VIII/5 or 19)

Acid gel or solution
Acrylic or other tray materials
Dental impression materials
Retraction materials, cord, packing material, etc.

CATEGORIES OF ORTHODONTIC APPLIANCES

A. Orthopaedic Appliances:

(Section 18, Part VIII of Schedule III)
Orthopaedic appliances correct or prevent malformations of the jaw, face, facial muscles, joints and other related structures. Included within the orthopaedic category of orthodontic appliances are the following:

- | | |
|---------------|------------------|
| 1. Activator* | 14. Oral Screen |
| 2. Bimler | 15. Orthopaedic |
| 3. Bionator* | Corrector* |
| 4. Bionator | 16. Reverse Face |
| Block* | Mask |
| 5. Crozat | 17. Sagittal |
| 6. Frankel* | 18. Schwartz |
| 7. Haas | 19. Split |
| 8. Herbst* | Plate and |
| 9. Hyrax | Expansion |
| 10. Jackson | Appliances |
| 11. Lehman | 20. TMJ Splints* |
| 12. Monobloc* | 21. Univator* |
| 13. Nord | |

B. Orthodontic Appliances

(Section 18, Part VIII of Schedule III)
Orthodontic appliances move individual teeth through alveolar and basal bone thereby correcting and/or preventing irregularities and deformities. Included within the orthodontic category of orthodontic appliances are the following:

1. Anterior Cross-Bite Appliance
2. Automatic Hawley
3. Lip Bumper
4. Space Regainer
5. Spring Retainer
6. Other Active Appliances Or Devices For Moving An Individual Tooth

*All Types

C. Retaining Or Maintaining Appliances (Section 18, Part VIII of Schedule

Retaining or maintaining appliances are used to hold the teeth in a desired position after orthodontic tooth movement until the bone forms and hardens around them thereby preventing further deformities from occurring. Included within the retaining or maintaining category of orthodontic appliances are the following:

1. Space Maintainers
2. Space Retainers

D. Habit Breaker Appliances

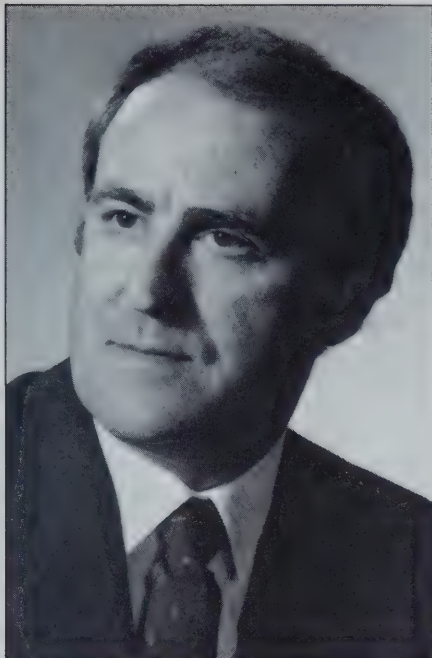
(Section 18, Part VIII of Schedule III)
Habit breakers are appliances which control the tongue muscle and retrain it to a more desirable position. They discourage deforming habits such as thumb sucking or pressing the tongue against the front teeth so as to help prevent a skeletal deformity. Included within the habit breaking category of orthodontic appliances are the following:

1. Thumb Sucking Appliances
2. Tongue Thrusting Appliances

E. Fixed Banding Appliances

(Section 19, Part VIII of Schedule III)
Fixed banding orthodontic appliances are assembled in the patient's mouth by a dentist or orthodontist. They apply force to the teeth and their supporting tissues to produce changes in the relationship of the teeth and related alveolar and basal bone structure thereby achieving the same purpose as the preformed and preassembled orthodontic appliances previously described. The following is a list of the materials and articles used in the in-mouth assembly of fixed banding appliances:

- | | |
|----------------------|------------------------|
| 1. Arch Wires | 17. Lugs |
| 2. Arch Auxiliaries | 18. Neck Pads and Neck |
| 3. Bands | Straps |
| 4. Bonds | 19. Pins, Posts |
| 5. Bases | 20. Screws |
| 6. Brackets | 21. Sectional |
| 7. Buttons | Wires |
| 8. Bumpers | 22. Separaters |
| 9. Caps and Channels | 23. Sheeths |
| 10. Cleats | 24. Springs |
| 11. Coil Springs | 25. Stops |
| 12. Eyelets | 26. Sutural |
| 13. Head Gears | Expanders |
| 14. Hooks | 27. Tubes and |
| 15. Ligatures | Tubing |
| 16. Locks | 28. Wire |



*Dr. John R. Robertson
CDA President, 1986-87*

DR. JOHN ROBERTSON BECOMES 67th PRESIDENT OF THE CDA

Dr. John R. Robertson, 47, of Summerside, Prince Edward Island, became the 67th President of the Canadian Dental Association at the annual meeting of the CDA Board of Governors in Halifax.

Dr. Robertson has been extensively involved in dental organizations locally, nationally and internationally.

A graduate of Dalhousie University, Halifax, in 1964, he served with the Royal Canadian Dental Corps from 1961 to 1969, and attained the rank of Major. Since that time he has maintained a private practice in Summerside.

Wide Experience

He is a past president of the PEI Dental Association, a former member of the CDA Council on Health Care and of the Advisory Board, Dental Assisting Program, of Holland College, Charlottetown, PEI. He also served as an examiner on the National Dental Examining Board of Canada, and his term was extended by that body.

Dr. Robertson holds memberships and has received honors from a wide range of dental organizations. He is a member of the Academy of General Dentistry, the Fédération dentaire internationale (FDI), the United States Dental Institute and the American Academy of Gerontology. He is a Fellow of the International College of Dentists and the Academy of Dentistry International.

He has served on CDA's Executive Council as a representative of Canada's Atlantic Provinces.

In addition to his professional involvement, Dr. Robertson is also active in community organizations. He is a director of the Summerside Waterfront Development Corporations, and has given leadership in the Scouting movement. He is a past member of the Summerside YMCA Men's Club and has served as a member of the Board of Managers of Summerside's Presbyterian Church.

He is married to Elizabeth Ann and the couple has three children — Catherine, Latricia and Trevor John.

In his limited free time, Dr. Robertson enjoys hunting, sailing and golf.

DR. RONALD J. MARKEY NAMED PRESIDENT-ELECT

Dr. Ronald J. Markey, 41, a Vancouver orthodontist with wide experience in organized dentistry, has been named President-elect of the Canadian Dental Association.

He had already served the CDA as a British Columbia representative on the Board of Governors from 1981 and on the Executive Council since 1984.

McGill graduate

Born in Montréal, January 1, 1945, Dr. Markey received his elementary and secondary education there, and was later graduated from Loyola University with a B.A. in Biology-Chemistry. He then studied at the Faculty of Dentistry, McGill University, graduating with his DDS degree in 1969.

He established a private general practice in Montréal and maintained it until 1972. During the same period (1969-72) Dr. Markey was a demonstrator in the Departments of Paedodontics and Operative Dentistry at McGill University.

In 1972, he headed West and began studies at the University of Washington, Seattle. He graduated in 1974 with an MSD in Orthodontics.

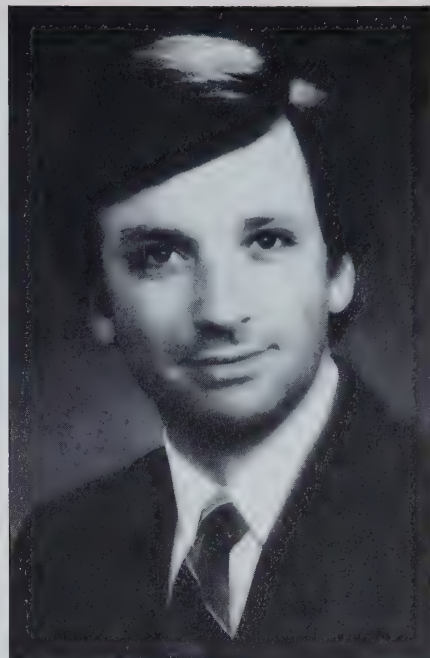
In 1974 he joined the Faculty of Dentistry at the University of British Columbia, serving until 1975 as an assistant professor, and as a sessional lecturer from 1975 to 1980.

The private orthodontic practice which he maintains in Vancouver and Richmond, was established in 1975.

With the College of Dental Surgeons of British Columbia, Dr. Markey has served in the offices of Treasurer (1980-81), Vice-President (1981-82) and President in 1982-83 and 1983-84.

He served as President of the British Columbia Society of Orthodontists in the 1980-81 term, after holding the offices of Treasurer, Secretary and Vice-President.

Dr. Markey has also been a prominent



*Dr. Ronald J. Markey
President-Elect, CDA*

member of the Interspecialty Dental Society of B.C., holding the offices of Secretary-Treasurer (1979-80) and Representative to the College Council, in the same term.

He has served the Pacific Coast Society of Orthodontics as chairman of the Megaclinic Annual Meeting, 1978; assistant program chairman, PCSO Northern Meeting, 1979-80, and in the following year, chairman. From 1983 to 1985, he served on the Constitution and By-Laws Committee.

He has also been active in the Vancouver & District Dental Society and the Canadian Association of Orthodontics.

Dr. Markey is also involved in community affairs and this year has been serving as Chairman, Professional Development Division, of the United Way Campaign Cabinet (Lower Mainland of B.C.).

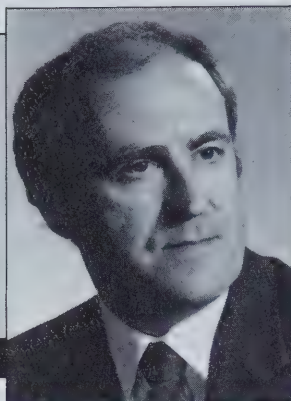
He is married and the couple has four children.

JOURNAL RETURNS TO FULL CIRCULATION

Effective October 1, 1986, the Journal of the Canadian Dental Association returned to a circulation which will cover all Canadian dentists.

The return to full circulation, after nearly three years of being circulated to CDA members only, came following a resolution that was passed by the Annual Meeting of the CDA Board of Governors. It is expected that the return to full circulation will increase both the profile of the CDA among non-member dentists, and will increase the revenue producing potential for the Journal.

Dr. John Hardie, Chairman of the CDA's Editorial Board made a comprehensive



PRESIDENT'S COLUMN

Dr. John R. Robertson

LET ME INTRODUCE MYSELF

Becoming the 67th President of the Canadian Dental Association in Halifax in August was both a moving and a lighthearted experience. Many of those present for the occasion already know me well. For those who do not, let me introduce myself. I graduated from the Faculty of Dentistry at Dalhousie University in 1964. I'm a true Maritimer, having spent my formative years in Yarmouth, Bridgewater and Halifax, Nova Scotia. My interest in organized dentistry began during my term in dental school at Dalhousie — I was the dental school's representative on the University students council and was class president during all four of my years at the dental faculty. I am currently in private practice in Summerside, Prince Edward Island, where I reside with my wife Betty, a registered nurse and our three children: Catherine Elizabeth; Latricia Ann and Trevor John.

I have served on many of the Councils of CDA over the years: the Councils on Health Care, Dental Materials and Devices, Hospital and Institutional Services, Education and Accreditation, as well as the Subcommittee on Continuing Education. I was also the representative to Executive Council from the Atlantic Provinces. Provincially I served two terms as President of the Prince Edward Island Dental Association and represented PEI on the CDA Board of Governors. I was also Clinical Examiner for the National Dental Examining Board for several years.

Now, allow me to take a moment and tell you what my objectives are as CDA's new President. One of my prime purposes is to bring our profession closer together and closer to CDA. I would like to see a real spirit of cooperation across Canada fostered among all Canadian dentists to promote dentistry to the Canadian people and to work closely with CDA as a whole profession to achieve that goal.

It is my hope that during my tenure as President, I can also interest more Canadian dentists in caring for our seniors. More time and effort from the profession should be spent in the areas of geriatric and chronic care dentistry. Our very successful Dental Awareness Program is making dentistry more visible to the public and our profession will have to make our services available to all segments of the Canadian population — including our seniors.

A particular interest of mine in the next year will be to work to support the pilot self assessment/continuing education project, jointly funded by CDA, NDEB, ACFD and CFDE.

I also fully intend to follow the "open door" policy of my predecessors with respect to communicating with the dentists of Canada, and particularly with members of CDA. This may include holding several "Call the President Days" as well as, naturally, continuing this column and keeping the membership informed about issues and concerns to the profession.

In this, my first column, I would like to take the opportunity to express a little appreciation and say a few words of welcome. To my immediate predecessors, Drs. Ralph Crawford and Brad Holmes, I would like to thank them for their support and encouragement over the past few years. I would also like to acknowledge the contribution of our Executive Director, Jardine Neilson and our efficient competent headquarters staff. An Association is not simply a President — it is a team effort. I believe the CDA has an excellent team to serve you, and I hope that by the end of my term as President, I will have become a valuable member of that team serving the profession.

I would also like to welcome Dr. Ron Markey, of Vancouver, B.C. as CDA's new President-elect. Two new members of Executive Council have also started their terms this year: Dr. Kevin Roach of Pembroke, Ontario and Dr. Don MacFarlane of Vancouver, B.C. I wish them all the best of luck and a long and happy association with the rest of us on Management Committee.

Finally, I hope to have an opportunity to visit every province at least once during my term of office and to visit with as many students as possible. Most of all, I hope that I can serve you well as your President and I look forward to my year with enthusiasm.

presentation to the Board of Governors on the question of Journal circulation. Using both statistics and charts, Dr. Hardie detailed to the Board the historical and current consequences of circulating the Journal to CDA members only. Following his presentation, the Board of Governors voted in favour of the Editorial Board's resolution requesting that the Journal be returned to distribution to every dentist in Canada.

With the reinstatement of full circulation, the Journal will continue to reflect in its content Association activities, as well as a continued striving for high quality articles which appeal to the whole dental community. A continued commitment has been made to producing a high quality, readable and informative Journal for every Canadian dentist.

EXECUTIVE DIRECTOR'S REPORT ON THE 1986 ANNUAL BOARD OF GOVERNORS MEETING

Highlights and Principal Decisions

1987 Budget/Five-Year Financial Plan

The Board reviewed and approved a balanced budget for 1987 projecting revenue and expenses of approximately \$3,550,000.

A five-year financial plan was presented to the Board for information. The development of an associated five-year operational plan is underway, and will be reviewed at the November Executive Council Planning Session.

CDSPI Board of Directors

The Board adopted motions directing the Association's support of the restructuring of the CDSPI Board of Directors as outlined below:

Management Committee members of CDSPI will be appointed on an equal basis as officials of the Board. They will not be voting directors, but retain the entitlement to attend all meetings of the Board.

The Board of Directors of CDSPI will be structured as follows:

- British Columbia, Alberta and Quebec will each appoint one voting director;
- Ontario will appoint two (2) voting directors;
- Manitoba and Saskatchewan will each appoint a representative; one of these representatives shall be a voting director; the other an observer;

• Prince Edward Island, Newfoundland, Nova Scotia and New Brunswick will each appoint a representative; one of these representatives shall be a voting director; the remaining three (3) representatives shall be observers;

• The CDA will appoint two (2) voting directors. One will be appointed at large by CDA; the other will be appointed from the CDA Executive Council, and will serve as Executive Liaison to the Council on Insurance and Investment.

The above restructuring of the Board of Directors of CDSPI was subsequently approved at the Annual Meeting of CDSPI on August 23, 1986. The CDA Executive Council has named Brig.-Gen. James N. Wright (member at large) and Dr. Gilles Dubé (Executive Council Member and Executive Liaison to the Council on Insurance and Investment) as the CDA voting directors for the calendar year 1987.

1987 Participation Agreement

The existing Participation Agreement (1986) provides for co-sponsors to discontinue participation in sponsored plans upon meeting certain notice requirements. The Executive Council expressed concern to the Board that existing termination provisions allow for actions which have a detrimental effect on the overall stability and performance of the Canadian Dental Insurance Plans.

Governors approved a motion to amend the Participation Agreement to be entered into as of January 1, 1987. The motion prohibits the participation of a co-sponsor which does not agree to sponsor all plans which are being sponsored by such co-sponsor under the 1986 Participation Agreement.

Certifying Board for General Dentistry

At the 1986 Interim Meeting, Governors deferred consideration of a CDA Position Statement on a Certifying Board for General Dentistry, in order to allow fuller discussion with representatives of the Certifying Board.

In May, 1986, representatives of CDA met with Dr. Dan Loving, President of the Certifying Board and Dr. Robert Patrick, Past-President, AGD. A meeting was also held between the CDA and the AGD President, Dr. Burton Schwartz, to discuss this issue.

Governors approved the CDA Position Statement on a Certifying Board for General Dentistry, which opposes the establishment of the Certifying Board. The CDA Position Statement will be published in a future issue of the Journal.

ACFD Membership — CDA Board of Governors

A motion from the Executive Council recommending ACFD voting membership on the Board of Governors was tabled. Governors requested additional examination of the impact of such Board membership on the present structure of representation through active membership in the CDA.

1986-87 Elections

Dr. Ron Markey of Vancouver, B.C., was elected President-Elect by the Board of Governors. Dr. Markey has been a member of the Executive Council since 1984, and was unopposed in this election.

CDA Honours and Awards

The Board approved revised guidelines for CDA Honours and Awards, which include the establishment of two additional awards — the Award of Merit and the CDA President's Award.

The Honours and Awards Sub-Committee will report through the Council on Nominations, Awards and Trusts.

CDA Mission Statement

The Board approved a Mission Statement for the Association. The Statement, which will appear in its entirety in a forthcoming issue of the Journal, will be incorporated into the Constitution and By-Laws of the CDA.

Membership Fee Increase

Based on financial projections, the Board approved a 3.8% increase of \$10.00 to the CDA active membership fees effective January 1, 1988. The fee for active members for 1988 will be \$270.00. Other membership categories were increased proportionately.

The Executive Council will establish program and operations plans for 1988 at the November, 1986 Planning Session. The Board was informed that a further 1988 fee increase may be recommended at the 1987 Interim Board, if program and/or operations priorities so indicate.

Journal Circulation

In presenting his report to the Governors, Editorial Board Chairman Dr. John Hardie expressed concern over the steady loss of revenue since the decision to restrict circulation to CDA members. Dr. Hardie stressed the considerable advantage for advertising dollars held by competitors whose circulations cover all dentists in Canada.

The Board approved a recommendation reinstating circulation of the Journal to all dentists in Canada.

The Management Committee will appoint an Ad Hoc Committee on Publications, to review all current CDA publications and sub-

mit recommendations on their future terms and inter-relationships.

Policy Statement — Radiographs

On recommendation of the Third Party Dental Plans Committee, the Board approved a CDA policy statement on the use of radiographs. In presenting this motion to Governors, Committee Chairman Dr. Don MacFarlane expressed grave concern that dental patients not be exposed to X-radiation for the sole purpose of verification of eligibility for dental benefits, or confirmation of treatment completion.

This policy will be communicated to the membership in a future edition of the Journal, or through Communiqué. Federal and provincial Ministers of Health, third party carriers of dental services, federal and provincial superintendents of insurance, federal and provincial regulatory bodies, and the Consumers Association of Canada will also be made aware of the Association's position in this regard.

CDA Brochure on Capitation

The Board reviewed and approved a CDA brochure on Capitation. The brochure, to be mailed to all dentists in Canada and final year dental students, covers a wide range of information on capitation, and includes sections covering: The Mechanics of Capitation, Management of Risk, Capitation from the Patients' Perspective, Capitation from the Perspective of the Plan Promoter, General Provisions of Capitation Contracts, Capitation Contacts and Professional Ethics, and The Cost Factor.

CDA Prepaid Dental Plans Policy Manual

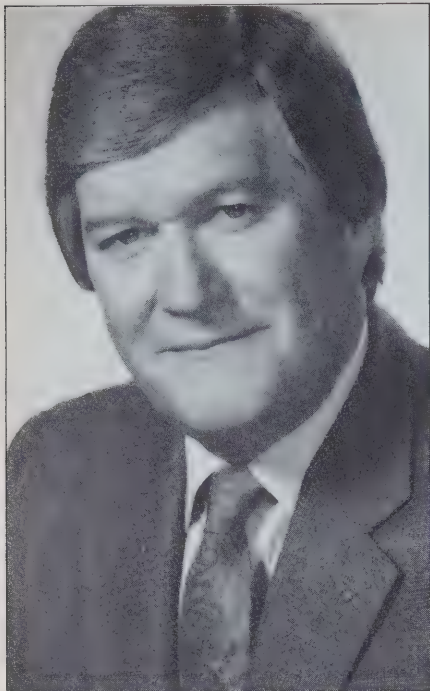
Governors reviewed a draft of the CDA Policy Manual on Prepaid Dental Plans. Dr. MacFarlane reported that a final version would be brought to the 1987 Interim Board for approval.

Consumer Products Recognition

Information was provided to the Board on the status of CDA Anti-Plaque Guidelines. Chairman of the Committee, Dr. Ralph Barolet, reported that review and development of this item is ongoing, and will be brought to a future meeting of the Board for approval.

Comparative Advertising

The Consumer Products Recognition Committee reviewed its position on comparative advertising, after being informed that the Health Protection Branch of Health and Welfare Canada allows comparative advertising for cosmetic claims. CDA's Committee maintains its position on *non-acceptance* of any type of comparative advertising.



A. Jardine Neilson
Executive Director

Professional Resource Utilization Committee

Dr. Bradley Holmes, Chairman, presented information to the Board on the ongoing activities of the Professional Resource Utilization Committee.

Dental Manpower Supply Studies conducted by R.K. House and Associates for the CDA in 1982 and 1984 have been re-examined and re-affirmed in consultation with Dr. Don Lewis of the University of Toronto and Mr. Richard Cameron, of Halifax, who has been involved in recent manpower studies in Nova Scotia.

A working group was convened to review base data on the demand for dental treatment, and to project scenarios for future demand to the year 2006. Results and projections of the Working Groups will be studied by the PRU Committee and recommendations for future action presented to the Board.

Taxation

The Chairman of the Taxation Committee, Dr. Robert Hicks, provided Governors with updated information on his most recent discussions with Revenue Canada — Excise on the tax status of dental materials and orthodontic appliances and supplies. Although written confirmation had not yet been received, the Committee anticipates a positive response from Revenue Canada on these two items.

NOTE: Official confirmation has now been received from Revenue Canada — Excise regarding the sales tax exemption for

orthodontic appliances and supplies, and exemptions for additional dental materials. A separate communication has been mailed to all CDA members giving details of this latest breakthrough. If you have not received a copy of this important information, please contact the CDA office immediately. Details are also published in this issue.

Discussion continues with Revenue Canada on the application of the Personal Service Business definition to Professional Management Companies. Dr. Hicks requested assistance in obtaining documentation of incidences where Professional Management Companies had been audited, and the Personal Service Business definition applied. Members are requested to contact the CDA as soon as possible, if they are able to assist in this regard.

Government Relations

Dr. Ron Markey presented the Government Relations Committee report to the Board, highlighting the continued intensity of government relations activities.

CDA Management Committee met with the Honourable Jake Epp, Minister of Health and Welfare in May. Other Senior officials from Health and Welfare including Mr. David Nicholson, ADM — Medical Services Branch, and Dr. Peter Glynn, ADM — Health Services and Promotion Branch, were in attendance to discuss a broad range of topics including the Canada Health Act, the National School of Dental Therapy, the Medical Services Review Team, and CDA's Brief to the Legislative Committee on Bill C-96.

CDA Conventions

Dr. Michel Jahjah has been confirmed as the Chairman of the CDA's 1987 Convention being held in conjunction with Les Journées Dentaires of l'Ordre des dentistes du Québec at the Palais des congrès in Montreal. The date for the Convention is May 24-28, 1987.

Planning continues for the 1988 Convention in Edmonton — August 29-31, under the Chairmanship of Dr. Roger Ellis.

Third World Assistance

Recent activities in this area have seen the approval, by the Canadian International Development Agency, of the continuation of two CDA projects — Haiti and St. Kitts/Nevis. Dr. John Blackmer of the New Brunswick Department of Health is Project Director for the St. Kitts/Nevis program. Dr. Daniel Kandelman of the University of Montreal is Project Director for the Haiti program. The Journal will be providing features on these programs as they go forward later this year.

MD Growth Investments — Canadian Medical Association

The Board received information on a proposal from the Canadian Medical Association on participation by the CDA in its investment programs. The Council on Insurance and Investment has been requested to investigate the proposal, and make recommendations to the Board regarding CDA participation.

Brig.-Gen. James N. Wright

The Board expressed sincere appreciation to Brig.-Gen. James Wright for his service to the Association. Gen. Wright has served in several distinguished capacities during the past years, including the CFDS representative to the Board of Governors, Executive Council representative from Ontario, Chairman of the Committee on Salaried Dentists, and Executive Liaison to the Council on Insurance and Investment and the Council on Health Care.

General Wright has assumed the position of Head of Stomatology, Faculty of Dentistry, University of Manitoba.

Self-Assessment/Education Pilot Project

On recommendation of the Council on Education and Accreditation, the Board approved the development of a Pilot Project of a voluntary self-assessment/education program. In approving the project, the Board directed that confidentiality be mandatory.

The Board approved the sum of \$15,000 in support of the Pilot Project, on condition that remaining funding is provided by the NDEB, CFDE and the ACFD.

The CDA's Committee on Continuing Education will act in the role of coordinator for this jointly sponsored effort.

Prelicensure

The CDA Conference on Prelicensure recommended that the CDA, NDEB and ACFD, in association with provincial licensing authorities, further explore prelicensure as part of an effort to review the entire dental education experience. Governments, and national and provincial authorities are to be encouraged to extend practice residency programs, and support a review and evaluation of the delivery of dental care to federal and provincial institutions.

The Board approved a recommendation mandating the Continuing Education Subcommittee of the Council on Education and Accreditation to monitor actions taken by various bodies as a result of the above recommendations, and assist in further developments.

Council on Health Care

Recommendations for the Dental Treatment of Acquired Immune Deficiency Syndrome (AIDS) Patients were approved by the Board, on recommendation of the Council on Health Care.

The Board also approved CDA Guidelines for the Use of Nitrous Oxide in the Dental Office, and a Policy Statement on Sweeteners in Medication. These statements will be published in a future Journal edition, and are available from the CDA office on request.

Council Chairman Dr. Andrew Toeman presented information to the Board on the establishment of a CDA Position on the Use of Tobacco (including smokeless tobacco). Recommendations will be presented to a future meeting of the Board.

Dental Awareness Program

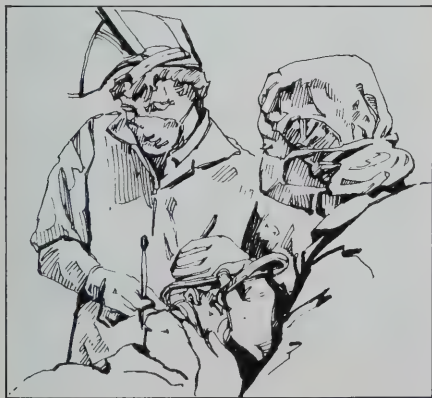
The Board approved the continuation of the Dental Awareness Program for the remainder of 1986 and for the 1987 year. An interim budget of up to \$45,000 was approved for the period October 1, 1986 to December 31, 1986. A budget of \$255,000 was approved for 1987. For the year 1988, a projected budget of \$250,000 will be recommended.

Manifest Communications will continue as consultants to CDA for the Dental Awareness Program for 1987-88.

Council on Insurance and Investment

Upon acceptance of the report of the Council on Insurance and Investment, the Executive Council sought and received Board approval of the distribution of approximately \$658,000 of life surplus to be distributed January 1, 1987 on the basis of a premium credit to the 1987 invoices, for insurance in effect as of August 23, 1986. The distribution is equal to 23.8% of the gross life premium otherwise due.

This action is in keeping with Executive Council responsibility to distribute surplus in the CDI Plans as outlined in the Participation Agreement.



CDA CONVENTION: HALIFAX HIGHLIGHTS

Story and photos by Carolyn Hackland

With the focus on working on skills, winning friends and whooping it up in true Maritime fashion, this year's CDA convention in Halifax gave delegates all that they had bargained for and more.

Wasn't That A Party?

On Sunday, August 24, delegates began to register at noon and by seven in the evening, those who had registered, along with their family members, were ready to party. Things got off to a grand start at the opening ceremonies with the platform party, including Simon Ramsay the 16th Earl of Dalhousie as a special guest, being piped in ceremoniously, and Halifax's Town Crier, Peter Cox, announcing the beginning of festivities. Following the Earl's humorous, but often moving opening remarks, he declared the convention officially open and delegates were exhorted to have a good convention and a really good time.

Those in attendance proceeded to do just that. Billed as a "Nova Scotia Seafood Fair" the opening registration party had a great variety of local seafood on hand. Included on the menu were oysters, Atlantic salmon, seafood chowder, mussels, smoked salmon and a Maritime delicacy known as "Solomon Gundy". Entertainment during the opening festivities was provided by Alistair and John MacDonald who rendered such

toe-tapping standards as "Wasn't That A Party" and such sentimental Maritime favourites as "Out on the Mira".

Monday Highlights

Monday's opening breakfast was very well attended, with over 200 registrants coming in to hear Don Green, Vice Chairman of Canada's Challenge '87 for the America's cup Inc. A yachtsman and businessman, Mr. Green spoke to delegates about a subject near to the hearts of many Canadians — competing for and winning the America's Cup yachting race in Perth, Australia in 1987.

The Scientific sessions then began with the Grieve Memorial Lecture, given by Dr. Frank Shamy of Montreal Quebec. Dr. Shamy spoke to a packed lecture theatre on "Vertical Dimension: First Priority in Orthodontic Diagnosis and Treatment Planning". An original concept, developed by Dr. Shamy, the topic and presentation generated much interest in the audience. A full report of this lecture is presented elsewhere in this issue.

Simultaneous presentations were being made also on the following topics during the morning session: "Orthodontics and Periodontics: The Foundational Basis for Restoration of the Compromised Adult Dentition," by Drs. Normand Boucher and Harvey Levitt; "Endo-Perio: The Diagnostic Dilemma", by Dr. Philip Molloy. Both of these sessions also had relatively large audiences. Dr. Michael Cohen's presentation on "Birth Defects and Dentistry"



Simon Ramsay, the 16th Earl of Dalhousie, was a special guest at the CDA Convention in Halifax and officially opened the Convention. (Left to right) Dr. Phil Cyr, Social Program Chairman, Mrs. Marilyn Cyr, The Earl of Dalhousie, Mrs. Margaret Vogan, Chairman of the Spouses Program and Dr. Ian Vogan, Convention Chairman.



Alistair and John MacDonald provided delegates with entertainment during the registration party: a "Nova Scotia Seafood Fair."



Delegates feasted on various varieties of seafood during the Seafood Fair, while waiters in seamen's garb, including the traditional Sou'wester, circulated with liquid refreshment.

gathered smaller numbers of delegates but those coming from the presentation told the Journal that the material was both interesting and informative.

The Monday lunch was designed in a "walkabout" format. Delegates were provided with a box lunch and invited to stroll through the exhibit area. The lunch was highly successful and indeed, sold out by one o'clock.

Afternoon highlights

The Monday afternoon sessions were highlighted by the well attended projected clinics. A new concept, these clinics were 20-minute presentations using audio-visual equipment to illustrate the various topics. A great deal of interest was generated in these with "standing room only" being the order of the day for most of the projected clinics.

Another well attended session was on CDA's Dental Awareness Program, entitled "Dental Awareness, How It Can Work for You". Presented by Mark Sarner of Manifest Communications, the session was well presented and generated a great number of useful ideas from the audience which will be used in the next year by Manifest during seminars to be presented to provincial organizations. The seminars are designed to help dentists and auxiliaries develop effective practice communication plans.

The other sessions being presented that afternoon, including that of Dr. Trevor Chin Quee on "The Role of Antimicrobials in the Treatment of Periodontal Disease" were also quite well attended.

One session, which, according to those present "should not have been missed" was that of Dr. Harold Slavkin, on "Research Opportunities for the 21st Century". While the topic did not attract a large audience, Dr. Serge Vanry, President of the College of Dental Surgeons of British Columbia, who did go to the session, told the Journal that "those who missed Dr. Slavkin's presentation really missed something special."

Tuesday Highlights

Following a free evening on Monday, delegates were rested and ready for another day of informative scientific and educational sessions.

A particularly well attended Tuesday presentation was given by Wilson Southam, a consultant with the Cox Group. Mr. Southam gave a lively and informative talk on "Creative Strategic Planning", for the dental practice. Every province and position on the dental team was represented including dentists, auxiliaries and office personnel. Placing his emphasis on promoting teamwork within the practice and building self esteem within the dentist, the

dental team members, and the patients, Mr. Southam told those present that individual attention and the importance of educating patients to make informed choices about their own care would promote esteem within the practice and make the practice a happier, healthier, less stressful place to work. Mr. Southam generated a lively participation by the audience and left many of those who had attended still talking about his creative planning concepts the next day.

Another very well attended presentation was that of Dr. David Garber on "Restorative Esthetics: New Horizons in Dentistry". Delegates were also still discussing Dr. Garber's presentation Tuesday evening.

As a follow-up to last year's Health Screening Project, which took place at last year's convention in Ottawa, a symposium was organized entitled "The Health of Canadian Dentists: Current Occupational Health Hazards of Concern". Chaired by Dr. Patrick Blahut, the symposium spotlighted three major areas of concern which were expressed by participants in the Health Screening Project in 1985. Dr. Elliot Sutow spoke to the audience on "Chronic Mercury Intoxicants"; Dr. William Mayberry gave a presentation on "Stress" and Dr. John Hardie presented "Infectious Diseases and Control".

While the session was not too well attended, Dr. Blahut told the Journal that delegates were interested in the findings and many who did not get the chance to attend the symposium asked extensive questions once the symposium was over.

At the same time, Dr. David Precious gave an excellent presentation on the "Evaluation and Correction of Dentofacial deformities: The Role of the Family Dentist".

CDA President's Luncheon

The CDA President's Luncheon on Tuesday was a sell-out. It was no wonder, after listening to the keynote speaker, General John Cabot Trail, the self-styled leader of the Cape Breton Liberation Army (CBLA). A slightly risqué, but extremely funny presentation by General Cabot Trail had delegates wiping away tears of laughter.

Then it was back to the afternoon's scientific sessions including two new ones. Dr. Derek Jones spoke on "The Future of Biomaterials, and Drs. Robert Brygidier and Robert Hoar spoke respectively on "Maxillofacial Prosthetics: from Womb to Tomb" and "Head and Neck Cancer: A Trilogy of Care".

Many of the morning sessions also continued, including Dr. Jay Seibert's on Surgical Reconstruction of Deformed Pontic Areas."

Practitioners presented table clinics



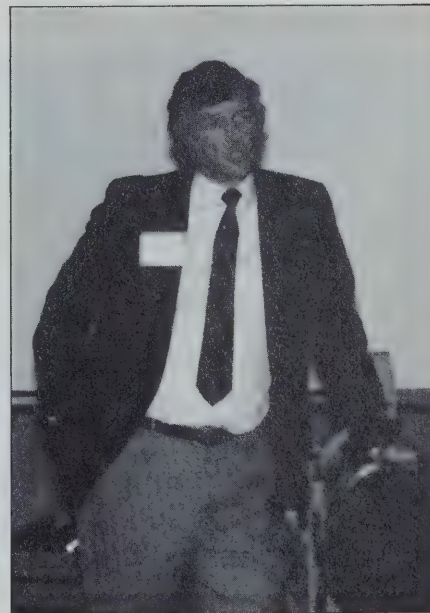
Some CDA staff members, including (Left to right) Council Secretary Monique Lynch, Director of Administration, Joel Neal and Mrs. Maria Neal, enjoyed the opening festivities.



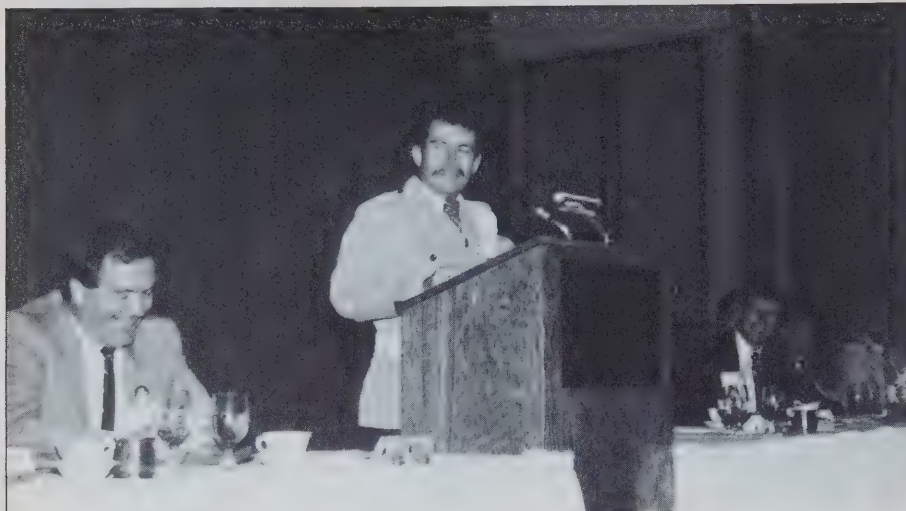
The group Finnegan, (seen here exhorting the audience to laugh with their RRR sign) entertained at the Lobster Bash Tuesday evening.



Mr. Don Green, Vice Chairman of Canada's Challenge for the America's Cup Inc. was the keynote speaker at the Opening Breakfast on Monday.



Mr. Wilson Southam gave a presentation on "Creative Strategic Planning," which was very well received by delegates.



General John Cabot Trail (centre) was the keynote speaker at the Tuesday President's Luncheon. Dr. Brad Holmes, seen laughing at left, was only one of the delegates who enjoyed the General's presentation.



Some of the audience at one of the well attended projected clinics, which were featured on Monday afternoon.



Some distinguished CDA members and staff joined in the fun on Tuesday evening. (left to right) Dr. Serge Vanry, President of the College of Dental Surgeons of British Columbia, Dr. Kevin Roach, Executive Council member from Pembroke, Ontario, Jardine Neilson, CDA's Executive Director and Dr. Don MacFarlane, Chairman of CDA's Third Party Committee. Peeking out from behind Dr. MacFarlane is CDA's President-Elect, Dr. Ron Markey, of Vancouver.

during Tuesday afternoon as well. Continuous presentations of a maximum of 15 minutes in length, the clinics were also well attended. Many of these will be featured in upcoming issues as "Clinical Features".

Lobster Bashing

Tuesday evening was time for the Maritime lobster to make itself scarce — 1200 hungry convention attendees descended on the Dartmouth Sportsplex to consume close to 3000 of the tasty crustaceans. Following the feeding frenzy, entertainment was provided by the amusing and irreverent group "Finnegan", who regaled delegates with good music, good humour and some bad "Newfie" jokes. Some good rock music was also provided by Terry Kelly, who had the delegates dancing well into the small hours.

Wednesday Highlights

Two particularly well received presentations that took place on Wednesday, the final day of the Convention, were updates on issues of special interest to the profession.

"Dental Manpower: A Symposium Update" chaired Dr. Ian Vogan, and presented by Dr. R.K. House, Dr. Derek Chisholm and Mr. Wilson Southam gave practitioners new insights into the manpower issue. Dr. House paid particular attention to the new study conducted on the demand side of the manpower issue, which was undertaken by the Professional Resource Utilization Committee (PRUC) of the Canadian Dental Association. Dr. Chisholm, Dean of Dentistry, University of Dundee in Scotland updated the audience on the dental manpower situation in Britain and the Scandinavian countries. Papers arising from this symposium will be published in upcoming issues of the Journal.

The session conducted by Dr. John Hardie, Chief of Dentistry at the Ottawa Civic Hospital and a representative on the National Advisory Committee on Aids, was entitled "Aids and Related Diseases in Dentistry". His session was also well attended and garnered a great deal of media attention from local newspapers, radio and television stations.

Two other sessions presented on Wednesday included Mr. Lorne Rozovsky on "Protecting the Dentist Against the Law", and Dr. Robert Chapman speaking on "Successful Removable Partial Dentures."

The next CDA convention will be held jointly with Les Journées Dentaires du Québec, May 24-28, 1987 in Montreal. Watch the Journal for more details in the near future.

INSTALLATION OF DR. JOHN R. ROBERTSON

Dr. John R. Robertson, of Summerside Prince Edward Island, was installed as the new President of the Canadian Dental Association, on Friday, August 22, 1986. The photos show some of the highlights.

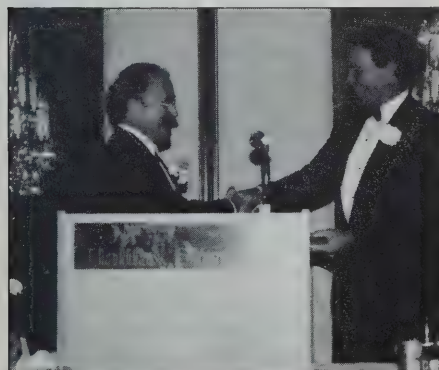
Photos: Carolyn Hackland



A reception sponsored by Oral B Laboratories was held just prior to the installation dinner. Shown waiting to greet the CDA officials are (left to right) Dr. Ron Markey, CDA President Elect, Diane Markey, Dr. Kevin Roach, Pembroke, Ontario, Dr. William Spence, Toronto, Ontario (CDA Past-President, 1970) and Dr. Arthur Schwartz, Dean, Faculty of Dentistry, University of Manitoba.



Dr. Robertson and wife Betty (left) donned their coolie hats, in preparation for the trip to the FDI meeting in Manila. Both hats were presented to them with appropriate words from Dr. Holmes.



Dr. Robertson (left) is seen just after receiving the chain of office and congratulations from Dr. Holmes (at right)



Just prior to the actual installation formalities, outgoing President, Dr. Brad Holmes, (shown at right) was given a fine send-up by CDA's Executive Director, Jardine Neilson (at podium.)



Drs. John Robertson (now CDA-President) far left, and Dr. Bradley Holmes (now CDA-Past-President) centre, are shown greeting some guests at the installation reception, including Dr. Jim Wright (with Dr. Robertson) and Dr. and Mrs. Ken Bentley, (backs to camera) with Dr. Holmes.



Dr. Ray Wenn, (left) CDA's Governor from Prince Edward Island, presented Dr. Robertson with some tokens of the PEI Dental Association's esteem, including a clock for Dr. Robertson's collection.



Dr. John Robertson is seen speaking to delegates after being installed as President of the Canadian Dental Association.



The new Executive of the CDA posed for a photograph following the installation. (left to right) Drs Ralph Crawford, former past-President, Dr. John Robertson, new President, Dr. Brad Holmes, immediate past-President, and Dr. Ron Markey, President-Elect.



Dr. Robertson posed with his family as new President of the CDA. (Left to Right) Latricia Robertson, Trevor Robertson, Mrs. Betty Robertson, Dr. Robertson and Catherine Robertson.

THE GRIEVE MEMORIAL

LECTURE: Shamy describes use of Vertical Dimension in Orthodontic Diagnosis

Dr. Frank Shamy, a noted Montreal orthodontist, was invited to deliver the Grieve Memorial Lecture at the CDA Convention in Halifax, Nova Scotia, on August 25, 1986.

Speaking to a full lecture theatre, Dr. Shamy presented the topic "Vertical Dimension: First Priority in Orthodontic Diagnosis and Treatment Planning."

The approach to orthodontic diagnosis and treatment planning which Dr. Shamy discussed, was developed by him in his orthodontic practice. Although the concept is not new, its clinical application to orthodontic treatment is quite recent. It incorporates the vertical dimension as a priority, as well as the more traditional sagittal and transverse dimensions, in establishing a functionally normal occlusal position of the mandible.

Dr. Shamy told his audience that "This approach differs from the traditional two dimensional emphasis on sagittal or antero-posterior relations where, no matter how badly malpositioned is the occlusion, the muscles will proprioceptively seat the mandible to the existing occlusal position and maintain it there. Treatment of the sagittal discrepancies at this occlusal contact position may perpetuate, rather than correct, a dysfunctionally postured mandible. On the other hand normalizing the vertical dimension first in a three dimensional approach, will release the mandible from entrapment and permit it to seek a functional position that is in harmony with both Postural Centric Relation and normal oro-facial physiology."

The mandible, using Dr. Shamy's method of changing the vertical dimension first, may be repositioned in overclosure cases by *increasing* occlusal vertical dimension and in underclosure cases by *decreasing* occlusal vertical dimension. He also explained how treatment to *musculo-skeletal* relations rather than to *dental* relations can successfully resolve severe functional and skeletal disharmonies by conservative orthodontic procedures, including TMJ and Myo-Facial Pain Dysfunction problems.

"By overcoming poor postural behaviour and re-establishing normal musculo-skeletal conditions in the orofacial area, most cases can be successfully treated without orthognathic surgical procedures," he said.

Dr. Shamy's presentation focused mainly on the treatment of adult patients. However, he did show the audience slides of four child patients who were treated through management of the vertical dimension.

"Functional orthopedic appliances used

in the treatment of *early* mixed dentition malocclusions release the mandible from the muscle-accommodated existing occlusion by changing the vertical dimension. This inevitably alters the three-dimensional relationship of the mandible in space, so that the mandible can express its full potential for growth and development in a new state of equilibrium and neuro-muscular balance. By means of this functional, three dimensional approach to treatment, developing malocclusions can be intercepted at an early age, thereby often reducing or even avoiding completely the need for fixed or removable appliances after eruption of the permanent dentition," he said.

Management of the vertical dimension in the permanent dentition, Dr. Shamy told his listeners, is more complex and can bring up the question of extraction versus non-extraction of permanent teeth.

"Decisions *for* or *against* extractions should be based on the need to increase the vertical or decrease it, and thereby normalize the posture of the mandible," said Dr. Shamy.

"*Overclosure* cases, with diminished anterior face height and *excessive* freeway space, are treated *non-extraction* in order to restore and *maintain* normal occlusal vertical dimension. Eruption or extrusion of mandibular and/or maxillary posterior segments is the mechanotherapy of choice in these cases. Often, but not always, distalization of the maxillary arch is also required."

"*Underclosure* cases, with *excessive* anterior face height and *negative* freeway space, are treated by the extraction of bicuspid or molars. Removal of occlusal stops by extraction of selected teeth; mesial movement of molars and bicuspid into extraction spaces; distal movement of bicuspid, cuspids, and incisors into extraction spaces; and intrusion of teeth by appliance or muscle forces, will all tend to reduce occlusal vertical dimension in underclosure cases, and close anterior open bites if they exist," he said.

Dr. Shamy emphasized throughout his lecture, that the normalization of orofacial physiology was of the utmost importance in treating cases. In many of the cases with which Dr. Shamy illustrated his presentation, the normalization of orofacial physiology was achieved by establishing lip seal early in treatment, with consequent normalization of tongue function and nasal respiration.

The definition and measurement of "freeway space" is important in evaluating rest and occlusal vertical dimensions.

"Freeway space is the difference between Rest and Occlusal Vertical Dimensions. A *normal* freeway space is positive and within

Photo by C. Hackland



Dr. Frank Shamy, (left) this year's presenter of the Grieve Memorial Lecture, entitled "Vertical Dimension. First Priority in Orthodontic Diagnosis and Treatment Planning", receives the plaque from Dr. Bradley Holmes, then CDA President (right).

a normal range of +0 to +4 mm. Anterior face height at contact of teeth is normal."

"Freeway space is considered *excessive* if the difference between Rest and Occlusal Vertical Dimensions is above 4 mm, that is, usually between +5 and +10 mm. In these cases, anterior face height is diminished, or shorter than normal at contact of teeth, and these patients are described as being overclosed," Dr. Shamy explained.

"*Negative* freeway space implies active contact of teeth at *all* times, with accompanying anterior face height that is excessive, or longer than normal. It would require a reduction of occlusal vertical dimension of sometimes up to 5 mm. in order to take the teeth out of active contact at rest position of the mandible. These patients are described as being underclosed," he said.

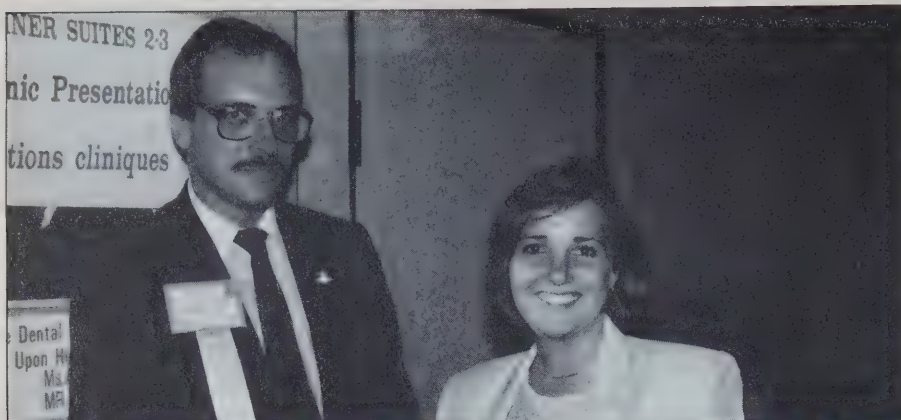
"In patients with *excessive* occlusal vertical dimension, or underclosure with negative freeway space, the opening group of muscles dominates the antagonistic closing group of muscles resulting in a weak force of occlusion at the occlusal table. Sometimes the activity of antagonistic opening and closing muscle groups may cancel each other out altogether. To change this muscle activity in favour of the closing group of muscles so that opening and closing muscle groups can function with equal efficiency at their physiologic resting length, a change in mandibular posture is required. This can occur by extraction or intrusion of posterior

teeth, physiologic impaction of the maxilla, normalization of nasal respiration and lip seal, improved tongue function and posterior pharyngeal seal, and improved head, neck, and vertebral posture," Dr. Shamy told the group.

"Conversely, in patients with diminished occlusal vertical dimension, or overclosure with excessive freeway space, the closing group of muscles dominates the antagonistic opening group of muscles resulting in a strong force of occlusion at the occlusal table. To change this muscle activity in favour of the opening group of muscles so that both groups can function with equal efficiency at their physiologic resting length, a change in posture of the mandible, the head and neck, and the vertebral column is required, but this time in the opposite direction to that of underclosure cases," he continued.

Dr. Shamy illustrated his lecture with slides of more than a dozen patients who had been diagnosed and treated utilizing his approach to the vertical dimension, showing excellent long term results not only in function but also in spectacular and dramatic changes in facial appearance.

He was enthusiastically applauded by the audience at the close of his presentation. The photo shows Dr. Brad Holmes, then CDA President, presenting Dr. Shamy with the plaque commemorating the Grieve Memorial Lecture.



Dr. Patrick Blahut (left) chats with Ms. Anne Gallagher (right) one of the presenters of a Projected Clinic on "Noise in the Dental Workplace and its Effect Upon Hearing." Hearing loss was identified by participants in the Health Screening Project as one occupational health hazard of concern.

SUMMARY: THE CANADIAN DENTAL ASSOCIATION HEALTH SCREENING PROJECT

By Dr. Patrick Blahut

Editor's Note: This summary was presented recently at the symposium entitled "The Health of Canadian Dentists: Current Occupational Health Hazards of Concern." The Symposium was presented at the CDA Convention in Halifax. Dr. Patrick Blahut, who was Chairman of the Steering Committee for the Health Screening Project, is currently overseeing the further administration of the Questionnaire on Occupational Health Hazards. Dr. Blahut is Assistant Professor, Dept. of Community Health and Preventive Dentistry, Baylor College of Dentistry, Dallas, Texas. The responses to the Questionnaire on Occupational Health Hazards, mentioned in this article, provided the basis for the Symposium. In a previous issue of the Journal (JCDA No 8, 1986) a summary of the medical findings of the Health Screening conducted at the 1985 CDA Convention, was presented by Dr. Robert Elder. The summary presented here by Dr. Blahut contains the very latest results of the findings and places the emphasis on the dental aspects of the data collected.

Introduction

The Canadian Dental Association provided dentists with a health screening examination free of charge during the C.D.A. national convention in September, 1985. The purpose of this endeavor was twofold: (1) to provide feedback to interested dentists concerning their general health; and (2) to collect information concerning the occupational hazards of the profession. Physical examinations were provided for 174 dentists; laboratory examinations ("blood studies") were provided for 175 dentists. Hair and fingernail samples

were analyzed for mercury concentration, as an indication of possible mercury intoxication. In addition, a comprehensive questionnaire concerning occupational hazards was returned by 256 general practitioners. This summary presents highlights from the data collected from these four sources.

I. Physical Examinations

A sample of 168 male and six female dentists were examined by internists associated with Ottawa Civic Hospital. This sample ranged in age from 25 to 80; the median age was 44.7 years. This sample is similar to the population of Canadian dentists with respect to age; there is an underrepresentation of females.

It is important to note that while this sample is not dissimilar from the population of Canadian dentists with respect to age and gender, it is not a random sample. All participants volunteered; models concerning health beliefs and actions suggest such a sample will contain an overrepresentation of relatively healthy individuals.

Findings from the physical examinations include:

- (1) 12 per cent of those examined were deemed to be overweight; 6 per cent less than 30 pounds 6 per cent greater than 30 pound overweight;
- (2) 5 per cent reported back problems "serious enough to seek medical consultations." This is significantly different from the prevalence (2.9 per cent) of back complaints in the general population.

The general impression of the internists performing the physical examinations was of a relatively healthy group exhibiting more often than usual comments about stress and back problems.

II. Laboratory Examination ("Blood Studies")

Laboratory examinations and a questionnaire addressing medical and vaccination

history, current medical problems and life style, were completed on 175 dentists. The laboratory procedures conducted were designed to detect a spectrum of acute and chronic diseases. Serologic tests were done to detect exposure to the more common infectious agents associated with the practice of dentistry.

Highlights of the results of these studies include:

- (1) An antibody to HTLV-III/LAV (AIDS) virus was not found in any participants;
- (2) One participant was found to exhibit a positive hepatitis B antigen, while 103 were antibody negative, including 12 who had completed the hepatitis B vaccination sequence. As well, 69 participants were antibody positive. Of these, 46 had received the vaccine, while 23 are presumed to have had a past infection. Discluding those receiving successful vaccination, the native hepatitis B antibody rate of approximately 19 per cent is in accord with other available data in the scientific literature, which suggests a prevalence among dentists of 15 to 28 per cent. By comparison, the prevalence of hepatitis B antibody in non-immigrant Canadians who are not health care workers is approximately 0.5 per cent. The successful vaccination prevalence of 26 per cent seems low, considering the risk to dentists of infection.

- (3) Eight dentists had no serologic evidence of infection by infectious mononucleosis; 67 had low levels of antibody to the Epstein-Barr virus; 100 had relatively high levels. This rate of positive responses is similar to prevalence rates for health care workers in other studies; it is much higher than the prevalence usually reported for individuals not associated with health care.

III. Analysis of Hair and Fingernail Samples

Dental personnel have been identified as an occupational group at risk to the hazard of mercury poisoning. Dentists have been found to accumulate mercury in hair and fingernails. The concentrations in these tissues provide an approximate indicator of exposure to an absorption of mercury in the dental office. While the relation between mercury concentration in various tissues and mercury hygiene habits is confounded by other variables and thus only approximate in nature, it nevertheless seems prudent for dentists exhibiting relatively high concentrations to reassess office practices with regard to the storage and manipulation of mercury.

Both hair and fingernail samples were collected from 164 dentists who also completed the occupational hazards questionnaire. There exists no universally accepted "normal" concentration of mercury in

these tissues; nor do slightly elevated concentrations correlate with physical symptoms of intoxication. From the study of individuals, mostly fisherman and their families, poisoned from industrial mercury contamination, the extremely high concentrations of mercury associated with life threatening pathology have been identified. Fortunately, no dentists in this sample approached these concentrations.

In the original 164 pairs of tissue samples, 30 individual samples were found to contain over 30 parts per million mercury (p.p.m.). While these concentrations are exceedingly low compared to those concentrations associated with overt symptomatology, they are relatively high compared to concentrations of individuals not routinely exposed to mercury. The concentrations of mercury in hair and nails usually found in the "general public" are in the range 0-8 parts per million.

All dentists were notified of the concentrations in their samples. Those with concentrations greater than 30 p.p.m. were offered information concerning mercury hygiene, and a free second analysis. We received 27 samples for a second analysis, which took place approximately 10 months subsequent to the collection of initial samples. The mercury concentrations of these dentists were significantly higher than those of the other dentists in the original sample. However, almost all concentrations were reduced relative to the corresponding initial tissue sample. All participants were informed of the results and the availability, from the C.D.A. Library, of appropriate pragmatic guidelines for the reduction of mercury contamination in the dental office.

When high mercury concentrations were examined relative to practice characteristics addressed on the questionnaire, only one strong relationship became apparent: high mercury concentrations in both hair and fingernails were associated with the use of reusable capsules for the trituration of amalgam, and the associated use of "bulk" or large quantities of mercury. This relation was statistically significant at a p value or less than 0.01. No other correlations at this level of significance were found.

IV. Questionnaire Addressing Occupational Hazards

A comprehensive questionnaire concerning perceived occupational health hazards was completed by all participants. In addition, a number of dentists not receiving physical examinations, laboratory examinations, or mercury screening kindly completed questionnaires. A total of 256 questionnaires was collected.

Highlights from the analysis of these data include:

- (1) a lack of correlation between any indicator of overall general health and concentration of mercury in hair or fingernails;
- (2) a higher than expected prevalence of partial hearing loss was reported by survey participants. 44 per cent of those responding believed they had experienced a loss of hearing as a result of their profession. Right-handed dentists tended to indicate greater hearing loss in their left ear. 22 per cent of those responding indicated trouble hearing what is said in a normal conversation. Both of these statistics are significantly elevated relative to occupational groups not exposed to hazards to hearing;
- (3) a higher than expected prevalence of back problems was reported. Individuals reporting back problems during the physical examination tended to mention it again

in the open-ended questions. Those dentists who completed the questionnaire but did not undergo a physical examination also mentioned back problems in approximately the same proportion (5.5 per cent).

(4) the prevalence of comments concerning stress and associated problems was much higher than those found in a sample of individuals not associated with health care. The number of comments concerning stress and the perceived intensity of stress-related problems was slightly greater among this sample than among a sample of dentists who were salaried rather than self-employed.

(5) the areas of greatest concern to the dentists sampled with regard to occupational hazards of the profession include infection control, mercury intoxication, and stress.

RCDC CONVOCATION HELD IN HALIFAX

Fellowships were conferred upon 14 dentist-candidates and Memberships on 15 at the Convocation of the Royal College of Dentists of Canada, held in the World Trade & Convention Centre, Halifax, August 22.

RCDC President, Dr. M.J. Crompton, of Moncton, New Brunswick, presided at the Convocation.

The Convocation address was delivered by Dr. Kenneth L. Zakariasen, Dean of Dentistry, Dalhousie University, Halifax.

Fellowships conferred

Dr. Stephen I. Ahing, of Winnipeg (Oral Pathology),
Dr. François Blondeau, Sillery, Québec (Oral and Maxillofacial Surgery),

Dr. Grace Chau Bradley, Toronto (Oral Pathology),
Dr. Thomas John Erskine, Victoria, B.C. (Endodontics),
Dr. Michael Douglas Harper, London, Ont. (Oral and Maxillofacial Surgery),
Dr. Leslie Benjamin Heffez, Chicago, Illinois (Oral and Maxillofacial Surgery),
Dr. John P. Laba, Kentville, Nova Scotia (Oral and Maxillofacial Surgery),
Dr. Pierre-Eric Landry, Québec, Québec (Oral and Maxillofacial Surgery),
Dr. Karl Henry Lederman, Toronto (Prosthodontics),
Dr. Michael John Pharoah, Toronto (Oral Radiology),
Dr. George Kalman Sándor, Toronto (Oral and Maxillofacial Surgery),
Dr. Norman Randall Thomas, Edmonton, Alberta (Dental Sciences),

Photo: Carolyn Hackland



The photo shows some of the Fellows-elect, who were awarded Fellowships at the convocation. (Left to right) Drs. John Laba, Kentville, Nova Scotia; Norman Thomas, Edmonton, Alberta; Pierre-Eric Landry, Quebec City; François Blondeau, Sillery, Quebec; George Sándor, Toronto, Ontario; Michael J. Pharoah, Toronto, Ontario; Karl Lederman, Toronto, Ontario; Denis Veillette, Ste-Foy, Quebec. Fellows-elect not present at the convocation ceremonies were Drs. Stephen Ahing, Winnipeg, Man.; Grace Bradley, Toronto, Ont.; Thomas Erskine, Victoria, B.C.; Michael Harper, London, Ont.; Leslie Heffez, Chicago, Ill.; and E. Wayne Tunis, Edmonton, Alta.

Dr. Elliott Wayne Tunis, Edmonton, Alberta (Oral and Maxillofacial Surgery),
Dr. Denis Veillette, Montréal, Québec (Endodontics).

RCDC Memberships were awarded to:

Dr. Gary Michael Cousens, Orleans, Ontario (Oral and Maxillofacial Surgery),
Dr. James Mervyn Creighton, Toronto (Paedodontics),
Dr. Alan Kenneth Ghent, Toronto (Periodontics),
Dr. Rosamund Louise Harrison, Halifax, Nova Scotia (Paedodontics),
Dr. Peter Andrew Hayes, Little Rock, Arkansas (Paedodontics),
Dr. Melvyn J. Kellner, Willowdale, Ontario (Oral and Maxillofacial Surgery),
Dr. Henry John Lapointe, London, Ontario (Oral and Maxillofacial Surgery),
Dr. Paul William Major, Ardrossan, Alberta (Orthodontics),
Dr. Allan Chung-Sing Moon, Toronto (Oral and Maxillofacial Surgery),
Dr. Edmund Peters, Johannesburg, South Africa (Oral Pathology),
Dr. Paul John Puszczak, Edmonton, Alberta (Orthodontics),
Dr. Paul Shaw-Wood, Winnipeg (Periodontics),
Dr. Jacques Émile Thibault, Sudbury, Ontario (Periodontics),
Dr. Douglas Robert Vandahl, Edmonton, Alberta (Periodontics),
Dr. Robert Edgar Wood, Toronto (Oral Radiology).

RESULTS OF CDA/DENTSPLY STUDENT CLINICIAN PROGRAM

A student table clinician from the Faculty of Dentistry, University of Toronto took the first place award in this year's CDA/Dentsply Student Clinician competition.

Mrs. Claire Tjan-Eddyanto won for her clinic on "In vitro microleakage of a proprietary dentine bonding agent utilizing different restorative techniques". Mrs. Tjan-Eddyanto won an all expense paid trip to the American Dental Association's 127th annual session in Miami, Florida, as an honoured guest of Dentsply International.

Second place winner was Mr. Juraj Benko, of McGill University's Faculty of Dentistry. His presentation was entitled "Effect of Dentin Surface Treatment." He received a cash award of \$150.

This year's program was held in conjunction with the CDA Annual convention, in Halifax, Nova Scotia, and featured ten student table clinics. All Canadian dental schools were represented. Students received



Participants and sponsors of the 1986 CDA/Dentsply Student Clinician Program gathered for this photograph following the Dentsply Canada Reception and Dinner honoring the students. They are, first row, (l. to r.) Jane L. Walker, University of Western Ontario; Sylvie Lapointe, Laval University; Dr. Bradley W. Holmes; then President of the Canadian Dental Association; Mr. Bernard J. Beazley, Senior Vice President — Professional Relations — for Dentsply International; Claire Tjan-Eddyanto, University of Toronto; and Joy Graham, Dalhousie University. Second row (l. to r.) are Juraj Benko, McGill University; Jerry J. Baluta, University of Manitoba; C. Bruce Hill, University of Saskatchewan; Keith Stewart, University of British Columbia; Andre Chamberland, University of Montreal; and Jerry Doberstein, University of Alberta.

an expense-paid trip to Halifax to present their table clinics after placing first in their school's Spring Table Clinic Program.

Under the definition established by the Canadian Dental Association Council on Education and Accreditation, a table clinic is a table top demonstration of a technique or procedure concerned with some phase of research, diagnosis or treatment as related to the profession of dentistry.

Other students participating, their schools and clinic titles were: Jerry J. Baluta, University of Manitoba — "Three-dimensional cranial"; Andre Chamberland, University of Montreal — "Les implants dentaires"; Jerry Doberstein, University of Alberta — "Imaging of the Temporomandibular Joint (TMJ)"; Joy Graham, Dalhousie University — "Antibiotic therapy in periodontics"; C. Bruce Hill, University of Saskatchewan — "Artificial gingival replacement"; Sylvie Lapointe, Laval University — "AIDS — The importance to the dentist"; Keith Stewart, University of British Columbia — "Nuclear magnetic resonance imaging"; and Jane L. Walker, University of Western Ontario — "Oral Candidiasis."

A reception and dinner honoring student clinicians was hosted on Sunday evening, August 24 by Mr. Bernard J. Beazley, Senior Vice President — Professional Relations, of Dentsply International representing the sponsors. The dinner was held at the Halifax Sheraton and was attended by approximately sixty persons including student clinicians, Deans, Faculty Program Advisors

and special guests representing the dental profession and dental education.

Distinguished guests at the head table included Dr. Bradley W. Holmes, President of the Canadian Dental Association, and his guest, Freda Armstrong; Dr. and Mrs. P. Ralph Crawford, past President of the Canadian Dental Association; Dr. Thomas C. Larder, President of the Nova Scotia Dental Association; and Dr. O. Jack Penhall, President of The Alumni Association of Student Clinicians — American Dental Association (SCADA).

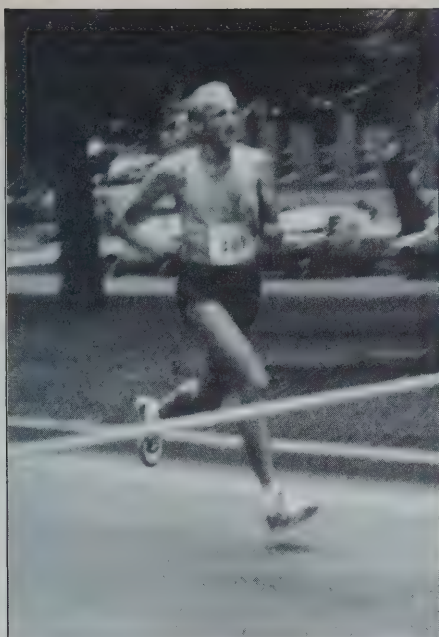
The student clinicians presented their clinics for the benefit of those attending the Convention on Monday, August 25 at the Halifax World Trade and Convention Centre.

CDHA FUN RUN SUCCESSFUL

The annual Fun Run, sponsored by the Canadian Dental Hygienists Association, and held in conjunction with the CDA Convention, was a success again this year.

Held on August 24, 1986, the Fun Run got off to a flying start from Dalhousie University's Faculty of Dentistry. The race, which was 10 kilometers in length, followed a picturesque course through a large Halifax park, Point Pleasant Park, which overlooks the Atlantic Ocean.

The winner of this year's race, with a time of 33 minutes, 54 seconds, was Dr. Dale Corkum of Port Hawkesbury, Nova Scotia. Second was Dr. Bob Clinton at 44 minutes 45 seconds. Dr. Gary Foshay also of Halifax and the Scientific Chairman of the CDA



Dr. Dale Corkum, of Port Hawkesbury Nova Scotia is seen crossing the Fun Run finish line. Dr. Corkum came in first, with a time of 33 minutes, 54 seconds.

Convention, came in third, with a time of 45 minutes, 33 seconds.

Dr. Roger Ellis, a keen endurance runner and Chairman of the Dept. of Dental Health Care at the Faculty of Dentistry, University of Alberta, came in fourth place, just seconds behind Dr. Foshay.

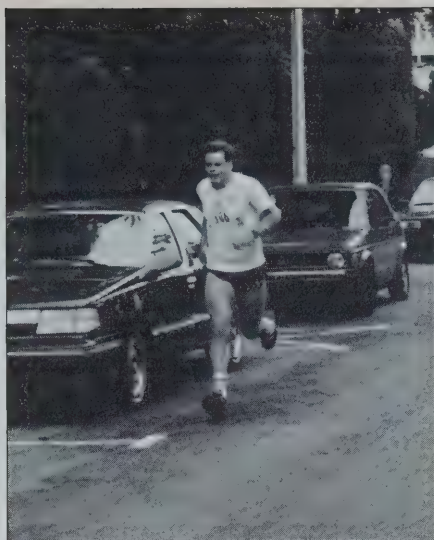
The first woman to finish the run was Sheryl Nesbitt, a dental hygienist from Ottawa, Ontario.

Other runners included two CDA past-Presidents: Dr. Bradley Holmes of Kenora, Ontario, who is CDA's immediate past-President, and Dr. Robert Hicks of Vancouver, British Columbia, who served as CDA President in 1983. It should be noted that while Dr. Hicks finished the entire run, coming in 16th, Dr. Holmes finished the run in the van which followed the runners, stating that it was "cheaper than a taxi ride to the finish line."

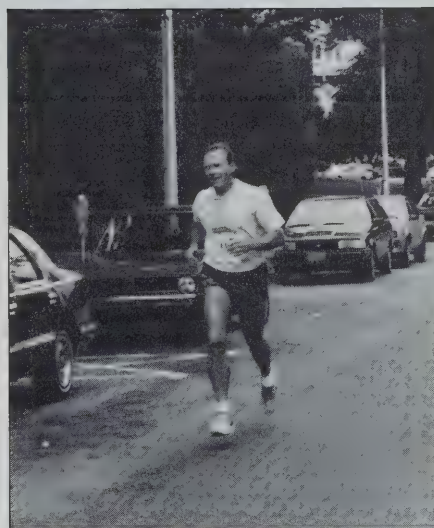
Dr. Ron Markey, CDA's President-Elect, also took part in the race, as did Dr. Roy Thordarson, Registrar of the College of Dental Surgeons of British Columbia. Diane Markey and Nancy Thordarson also finished the race, although slightly behind their respective spouses.

Also finishing the race were CDA's Executive Assistant, Sandra Deziel, who has been a jogger for several years, and Dr. Serge Vanry, who, though he came in last place, commented that he had enjoyed the race. Dr. Vanry is President of the College of Dental Surgeons of British Columbia.

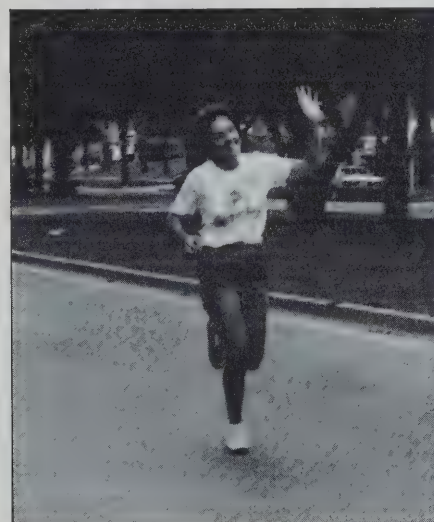
The photos show some of the highlights of the race, including a warm-up aerobics class given just prior to starting off.



Dr. Bob Clinton, of Halifax, Nova Scotia, came in second.



Dr. Gary Foshay of Halifax, Scientific Chairman of the CDA Convention, took third place honours at the Fun Run.



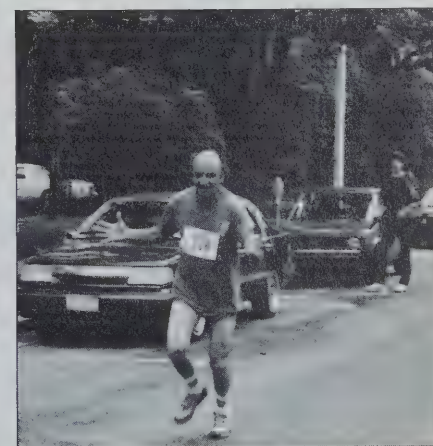
Sheryl Nesbitt, an Ottawa, Ontario, dental hygienist, was the first woman to finish the race.



Dr. Brad Holmes, then CDA President, is seen with taxi fare which he had in case of emergency. Dr. Ron Markey, now CDA President-Elect, looks on.



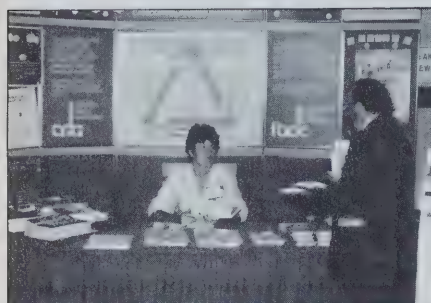
Dr. Brad Holmes apparently found alternate transportation to the finish line. With him is Nancy Thordarson, who came in 13th. Mrs. Thordarson is the spouse of Dr. Roy Thordarson, Registrar of the College of Dental Surgeons of British Columbia. Dr. Thordarson came in 12th.



Dr. Serge Vanry, President of the College of Dental Surgeons of British Columbia, enjoyed the race, and came in at last place, in a good humoured effort.

BACK TO BACK BOOTHS

Two convention booths made their debuts at the CDA Convention in Halifax.



The photo above shows CDA's Council Secretary, Monique Lynch answering a question from the CDA Booth, which has just had its centre panel redesigned.



The photo shows Dr. Roger Ellis (right) Chairman of the 1988 CDA Convention, and Florence Ingham, Administrator at the University of Alberta Faculty of Dentistry. Both were promoting the 1988 CDA Convention to be held August 25-31, 1988 in Edmonton.



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

DID YOU KNOW? There are approximately 10,000 Canadian dentists who belong to the Canadian Dental Association, but approximately 3,500 DO NOT!!

Eight out of the ten provinces have *mandatory* membership in C.D.A. That is by virtue of paying their annual provincial licensing dues, the dentists automatically pay the C.D.A. portion of \$235.00 (\$260.00 in 1987).

The two largest provinces, Ontario and Quebec, have *voluntary* membership in C.D.A. This is not the choice of the provincial dental associations, but determined by provincial legislation whereby the statutes decree the licensing body (protection of the public!) and the dental association (interests of the dentists!) must be separate.

C.D.A. is concerned about the 2,300 dentists in Ontario and Quebec who choose not to belong to C.D.A. Don't they realize they need C.D.A.! The National Association works continuously year round for the benefit of *all* dentistry.

This is the time of the year when the invitation goes out to the "voluntary" provinces to participate in the bargain of the year. For just 70 cents a day you become a member of the C.D.A. team — the team that's a consistent winner.

DID YOU KNOW? That in less than 20 months after its public launch, the Dental Awareness Program is one of C.D.A.'s greatest success stories. Media coverage is up at least 300 per cent over 1984. Dental Health Month 1986 coverage showed a 1,000 per cent increase over 1984. Every quarter, feature print and electronic media exposure are showing marked increases.

Corporations — and they know a winner when they see one — have demonstrated a willingness to support C.D.A.'s Awareness objectives and activities through approximately \$1,000,000 of sponsorship to date.

The overall objectives of the Program are working — there is increased awareness in dental health among the Canadian populace and there is increased motivation to seek dental care.

C.D.A.'s Board of Governors are committed to the Dental Awareness Program. At the annual meeting last September they unanimously budgetted \$225,000 in 1987 and \$250,000 in 1988 to the Program.

DID YOU KNOW? from the Dominion Dental Journal 1891. A letter written by a patient gives his experience in having a tooth extracted with electricity as an anesthetic.

"He says that the sensation during the operation was like being the central figure at a miniature execution by electricity, and that he not only felt the pain at the tooth being taken out, but pain about the head, face and arms as well. To this was added the helpless feeling of not being able to let go the handles while the current was on. He says he would much prefer having a tooth extracted without an anesthetic of any kind than submit again to the electricity".

An official tribute BOB MCALLISTER: A MODERN SAMARITAN

By H.E. Oscar Maurtua,
Ambassador of Peru to Canada.

Editor's note: When the JCDA news article about the death of Bob McAllister and tribute to his great humanitarian projects in Peru and the Caribbean was being prepared, (JCDA, July, No. 7 Pages 568-9), His Excellency Dr. Oscar Maurtua, the present Ambassador of Peru to Canada, expressed the desire to express an official tribute to the late Mr. McAllister in the pages of this Journal. The following is Dr. Maurtua's statement.

Peru is grateful to many foreigners who have devoted their lives to help the needy in the country. Among these Samaritans there is one Canadian that stands out very clearly. His name was Bob McAllister. Unfortunately, as it happens with other valuable men, he passed away in May this year, after a long and painful cancer.

In spite of the suffering of the unjust illness he had to endure, Mr. McAllister devoted much of his life and energy to help the poor people of other countries, especially Peru, to overcome much of their acute problems, resulting mostly from a lack of material resources, and basic first aid supplies.

Mr. McAllister, as head of the Azilda (Ontario) Lions Club, decided to start his own crusade to help those people. He had to confront several problems before being able to send some relief material to them.

Canada has always been regarded as a generous country — always willing to help those less fortunate. However, it is an enormous task to transport any donations, medical equipment or supplies from Canadian hospitals or institutions, as it is well known such equipment rapidly becomes obsolete for this country's high standards, and most of it has to be disposed of, or sold abroad.



Mr. McAllister is standing in front of a van used to transport personnel in the Federal Parliament, that later was transformed into an ambulance in Peru. Mr. McAllister is accompanied by His Excellency Dr. Oscar Maurtua, Ambassador of Peru to Canada.



Bob McAllister is seen, left, with former Government House Leader The Honorable Ray Hnatyshyn, now Minister of Justice and Attorney General of Canada, and on his left, Mr. Stan Darling, Member of Parliament and His Excellency Dr. Oscar Maurtua, Ambassador of Peru to Canada.

In these circumstances, Mr. Bob McAllister created a system under which poor countries like Peru would benefit with supplies that otherwise would just be wasted. Working in close contact with the Embassy of Peru in Canada, he implemented effective ways to transport these goods to Peru where they were appropriately distributed. In fact, the system he created worked so well that on the several occasions he travelled to and from Peru, he had become known as "the good Canadian friend of Peru" by the blue collar workers to the high ranking officials, in the ports of Callao and in the customs warehouses.

This has been reflected in the telex sent by Mrs. Pilar Nores de Garcia, the First Lady of Peru, who, a few days before his death expressed: "We are deeply in sorrow for his delicate health. We wish him a prompt recovery. We are sure his concern for the poor will fortify him in these difficult moments. We shall pray for him."

Fortunately, his efforts have not died with him. His cause is being carried on by a Peruvian doctor, Dr. Pablo Cano, long-time resident of Sudbury, Ontario, who has committed himself to pursue this noble task.

Finally, it should be mentioned that in recognition of his remarkable efforts, the Government of Peru, through its Ambassador in Canada, awarded him a decoration in the Degree of Grand Official. The austere ceremony, the way Mr. McAllister liked to do things, took place in the Ambassador's residence in Ottawa.

DENTAL OFFICERS GRADUATE AT BASE BORDEN CEREMONY

The graduation of the Dental Officer Training Plan Phase III Course candidates was held in August with the recently appointed Director General Dental Services, Brigadier-General J.F. Begin, as reviewing officer.

Other distinguished guests at the ceremonies were: Brigadier-General (retired) and Past-President of the Canadian Dental Association W.R. Thompson, who is Colonel-Commandant of the Dental Ser-

vices; Dr. Bradley W. Holmes, then President of the Canadian Dental Association, and Major (retired) G.C. Hunt, President of the Royal Canadian Dental Corps Association.

Awards presented

During the graduation ceremonies, Brigadier-General Begin presented 2Lt D.L. Stirling, of the University of Western Ontario, with the Honour Candidate Award. The Field Exercise Award was presented to 2Lt M.C.L. Poulin, of Laval University.

Training program

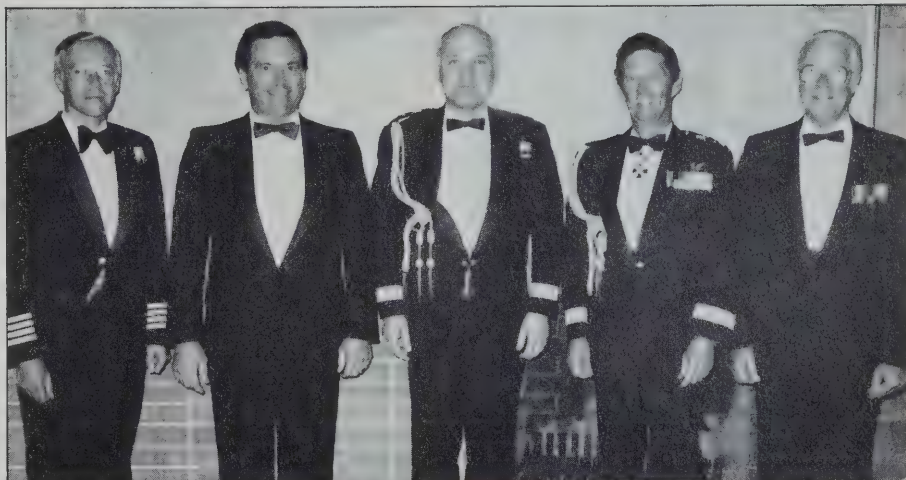
Phase III DOTP training consists of two major components. During Part A, the DOTP candidates receive "hands on" experience in military dental clinics across Canada, where the candidates are familiarized with the dental programs and procedures at "base" level. Part B is conducted at the Canadian Forces Dental Services School, CFB Borden, Ontario. During this five-week period, the DOTP candidates acquire knowledge of dental practice management and administrative procedures, as they apply to the Canadian Armed Forces.

The final week of training consists of a field exercise where the candidates are taught the skills required to function effectively in a field environment, while providing dental treatment in a mobile dental clinic.

Graduates

The twenty-six successful graduates of the Dental Officer Training Plan Phase III Course include:

Capt J.M. Pallo — University of Western Ontario; Capt D.P. Ward — McGill University; 2Lt A.J. Anderson — University of



Brigadier-General J.F. Begin, Director General Dental Services, is seen centre, with guests: (left to right) Colonel E.D. Cragg, Commandant of the Canadian Forces Dental Services School; Dr. Bradley Holmes, then President of the CDA; Brigadier-General (retired) W.R. Thompson, Colonel Commandant, CF Dental Services, and Major (retired) G.C. Hunt, President of the Royal Canadian Dental Corps Association.



Brigadier-General J.F. Begin presents the Field Exercise Award to 2Lt (W) M.C.L. Poulin of Laval University, during the graduation ceremonies of the Dental Officer Training Plan Phase III at CFB Borden, Ont.



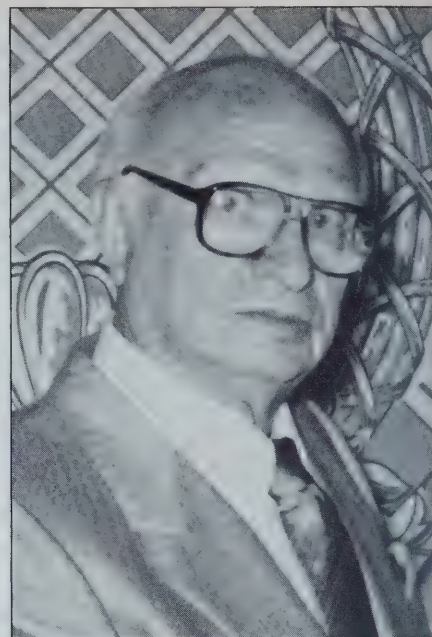
Brigadier-General J.F. Begin, right, Director General Dental Services, presents the Honour Candidate Award to 2Lt D.L. Stirling of the University of Western Ontario, during the graduation ceremonies of the Dental Officer Training Plan Phase III Course at CFB Borden, Ont.

Western Ontario; 2Lt R.H. Caine — University of Manitoba; 2Lt P.P. Coleman — University of Manitoba; 2Lt D.G. Dionne — University of Western Ontario; 2Lt J.G.N. Drolet — Laval University; 2Lt J.W.M. Dumas — Laval University; 2Lt J.C.J. Girard — Laval University; 2Lt A.R. Goff — University of Toronto; 2Lt T.W. Hogan — Dalhousie University; 2Lt G.J. Innis — University of Western Ontario; 2Lt R.W. Jackson — Dalhousie University; 2Lt J.P. Jobidon — Laval University; 2Lt B.M. Joy — McGill University; 2Lt T.L. Kovluk — McGill University; 2Lt J.F. Letourneau — Laval University; 2Lt D.J. Litchfield — University of Western Ontario; 2Lt R.F. McGillivray — Dalhousie University; 2Lt K.M. McMurtrie — University of Western Ontario; 2Lt J. McNeil — Dalhousie University; 2Lt W.D. Nish — University of Alberta; 2Lt M.C. Poulin — Laval University; 2Lt G.M. Sachkiw — University of Alberta; 2Lt L.M. Stanleigh — University of Toronto, and 2Lt D.L. Stirling — University of Western Ontario.

Mess Dinner

One of the highlights of the graduation ceremonies for the Dental Officer Training Plan (DOTP) Phase III Course is the mess dinner, held the evening prior to the parade.

Director General Dental Services Brigadier-General J.F. Begin's guests included CDA's Immediate Past-President, Dr. Bradley Holmes and Brigadier-General (retired) W.R. Thompson, Colonel Commandant, CF Dental Services and a Past-President of the CDA.



Dr. Isaac K. Lubetsky

Dr. Isaac K. Lubetsky DISTINGUISHED N.S. DENTIST PASSES AT 77

Dr. Isaac Kenneth Lubetsky, renowned Nova Scotia dentist, professor and community worker honored by his colleagues and his Alma Mater, died in the early autumn as the result of an automobile accident.

Born in Glace Bay, Nova Scotia, he graduated in dentistry from Dalhousie University, in 1931 and established a practice in Halifax.

At an early stage in his career, Dr. Lubetsky became involved in dental education with the Faculty of Dentistry at Dalhousie. He was successively a demonstrator, lecturer, assistant professor and subsequently, full professor of oral surgery.

Honored by Dalhousie

He was honored by Dalhousie in 1979 when he delivered the convocation address to the dental graduating class. He was named Professor Emeritus of Oral Surgery.

The Nova Scotia Dental Association named him as the first recipient of the Dr. Philip S. Christie Award in 1985. The NSDA established the award in recognition of distinguished service to dentistry in Nova Scotia and it is that Association's most prestigious honor.

Many student achievement prizes perpetuate Dr. Lubetsky's name in recognition of his role as an educator and supporter of Dalhousie University's Faculty of Dentistry.

During his career with the University, he contributed much personally and chaired many fund-raising campaigns to help the university realize its capital expansions and meet operating costs.

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	September 26, 1986	August 29, 1986
Fixed Income Fund	53.82355	54.15437
Common Stock Fund	116.72381	120.69453
Money Market Fund	35.76248	35.55987
Balanced Fund	22.24957	22.67799

Interest rates:

Guaranteed Fund

Term	September 29, 1986	August 29, 1986
1 yr	8.55%	8.50%
2 yr	9.00%	8.85%
3 yr	9.70%	9.50%
4 yr	9.85%	9.65%
5 yr	10.25%	10.10%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

September 29, 1986	August 29, 1986
\$62,879,827	\$62,605,259

For further information:

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Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

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READING TO KEEP UP TO DATE

Reading is to the mind what exercise is to the body, wrote the 17th century playwright and essayist Sir Richard Steele, and his precept is as true today as it was then.

But the practice is more difficult. The printed word has in the meantime been threatened by radio, television and audio-and video-cassettes, yet it seems to have endured. In fact, particularly for the busy professional trying to keep up with his craft, there seems to be a never ending amount of 'must reading' to be dealt with.

Are there means by which the busy dentist can keep up by reading? Speedreading may be one solution, but I've always felt that this is like bolting a good meal in five minutes — probably just as much nourishment, but not very enjoyable. In any case, it's not the mindless devouring of words that counts, so much as remembering what you've read. Perhaps a better approach, if a systematic reading program is going to be more than a chore, is to pre-sort the mountain of reading material that may be threatening to avalanche your desk, and turn it into a manageable molehill. One way of doing this is to make full use of abstracts and contents pages in the professional journals or to circle prominent headlines. No paper or magazine can expect to print material that would involve all of its readers all of the time, but nearly all of them make it as easy as possible to pick the information required. Just as the executive, to remain effective, has to use time wisely and juggle priorities appropriately, the person who wants to be informed has to decide in advance what he wants to be informed about and where he can find that information. It is a process, in other words, of discernment and discipline. Discipline in reading consists of allotting realistic amounts of time to it; discernment in sifting information . . . and in knowing what *not* to read. Or, as one writer puts it: "The art of reading is to skip judiciously".

One of Steele's successors, the great 18th century man of letters Samuel Johnson, even though himself the object of James Boswell's 1,400 page biography and the compiler of a monumental dictionary, is reputed never to have read a book all the way through. As another of his biographers writes: "He leafed through it, snatching at the gist, tearing the heart out of it."

In a recent article in *The New York Times Book Reviews* titled "Reading: the Most Dangerous Game", Harold Brodkey describes reading as an act "perhaps more intimate than any other . . . because of the prolonged (or intense) exposure of one mind to another" and suggests that "over a period of centuries, ignorance has come, justifiably, to mean a state of booklessness". He concluded: "If I intend for my life to matter to me, I had better read seriously, starting with newspapers and working up to philosophy and novels".

In your own reading — both for professional development and for general information and even for entertainment — the secret is constant monitoring and a certain amount of ruthlessness. Is the message coming through? Is the material interesting? Is it enjoyable? These are factors not always easy to discern since education, which taught us *how* to read, has not always taught us how to judge what's worth reading and what's worth persevering through. The ruthlessness is in discarding reading material that is over-written, confusing or irrelevant. The great advantage of papers, journals and books is that they are geared to the intellectual agility of their users, they are portable and they can become 'living textbooks' for constant reference.

And don't forget: reading is a buyer's market. Writers have to sell their wares. Sloppy writing makes for hard reading. As, author, Hillaire Belloc put it: "When I am dead I hope it may be said: 'His sins were scarlet, but his books were read'."

Community leader

His leadership qualities extended to many community groups. Dr. Lubetsky served a 10-year term as President of the Baron de Hirsch Congregation in Halifax and during that term, he spearheaded that congregation's project to build the new Beth Israel Synagogue.

He was an early president of the Halifax Zionist Council and served as a board member of the Halifax YMHA and B'nai B'rith.

In other community endeavors, he was the founding president of the Oakfield Golf Club and in recent years was honored for his leadership in the project. He was also a member of the Masonic Order.

He is survived by a son, Roy, in Toronto; a daughter, Lois (Mrs. Ivan Levine) in Fredericton, NB; a brother, Max and a sister, Bessie Carlin, in Sydney, NS, and four grandchildren.

Dr. Lubetsky was predeceased by his wife, Fanny, several years ago.



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Two delegates to the recent CDA Convention in Halifax, won a year's subscription to the DentSat videocassette educational series.

Dr. Michael Rozeluk of Scarborough, Ontario and Debbie Fraser, a Dental Hygienist from Riverview, New Brunswick, both won a year's subscription to the series.

The draw for the prize was held by CMESat Canada, an exhibitor at the Convention. CMESat is a distributor of the DentSat series of professional videocassettes in dentistry.

The Royal Canadian Dental Corps Association held a reception for present and former members of the Royal Canadian Dental Corps and the Canadian Forces Dental Services on August 25, 1986. The reception was held in conjunction with the Canadian Dental Association Convention, and took place at the RA Officers Mess in Halifax, Nova Scotia.

Over 100 present and former serving members of the Royal Canadian Dental Corps and the Canadian Forces Dental Services were in attendance. Co-hosts for the event were Major C.G. Hunt, (Retired) who is President of the RCDC Association, and Brig. Gen. Fred Begin, Director General, Canadian Forces Dental Services.

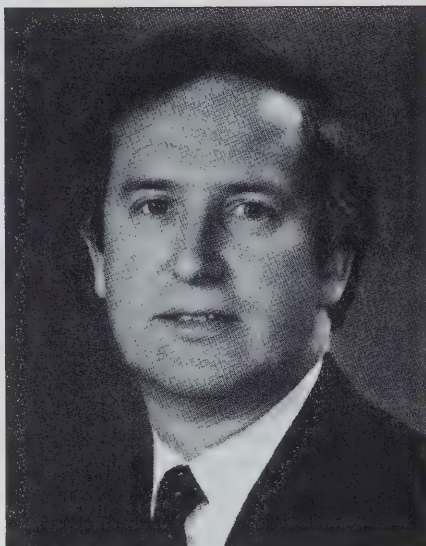
Special guests at the reception were CDA's then Management Committee: Drs. P. Ralph Crawford (then past-President), Dr. Bradley Holmes, (then President) and Dr. John Robertson, (then President-Elect and currently CDA's President.) Two former Directors General were also in attendance: Brig. Gen. James N. Wright (retired) and Brig. Gen. William R. Thompson (retired.)

At the reception, plans were announced that a special celebration to commemorate the 75th Anniversary of the Royal Canadian Dental Corps, will be held in 1990.

(The Journal Editor is indebted to Dr. Yosh Kamachi, Chairman of CDA's Council on Information Services, for his coverage of this gathering.)

Dr. John Hardie, Chairman of CDA's Editorial Board, was recently named the Canadian organizer for the next meeting of the International Society for Medical and Dental Research (ISMDR).

The next meeting will be held in February 1987 in Freeport, Grand Bahama Island. International speakers will be featured dis-



Dr. John Hardie

cussing a variety of disorders affecting the masticatory system.

The ISMDR is currently in its fifth year of operation, and is a society which promotes the professional interests of members from Europe, Canada and the United States by organizing post-graduate and research seminars on topics of interest.

Several courses in health care computing are being offered by Humber College in Toronto, during the month of December.

Of interest to dental practitioners are such courses as "Computers in the Radiology Department", which is being offered December 1, 1986 for \$225 and will be given at the Westin Hotel in Toronto. On December 2, 1986 at the same location, a course in "Computers in the Clinical Laboratory" will be given. The fee for this course is \$215. A two-day program entitled "Computers and the Health Care Administrator" will be offered December 8-9, 1986 at the Toronto Downtown Holiday Inn, at a cost of \$495 per participant.

For further information on these courses, contact: Conference and Seminar Services, Humber College, 205 Humber College Blvd. Etobicoke, Ontario, M9W 5L7, 416-675-5077.

The Canadian Lung Association is seeking nominations for its Canadian Lung Association/Connaught Award of Honour for 1987.

The award is given annually to an indi-

vidual or organization not directly associated with the Lung Association for outstanding service in the prevention and control of lung disease.

Recipients are also awarded an all-expense paid trip to the Lung Association's Annual Meeting, where the award is presented.

Nominations are currently being accepted. Included with the nomination documentation should be at least one letter of recommendation summarizing the nominee's positions (titles, dates) held during the performance of work for which the nomination is suggested; a current curriculum vitae, and reasons for the nomination. Nominations will not be accepted after December 31, 1986.

Nominations should be sent to Mr. Blair MacKenzie, Executive Director, Canadian Lung Association, 75 Albert St. Suite 908, Ottawa, Ont. K1P 5E7.

Members of the Faculty of Dentistry and dental students, at the University of Manitoba, earlier this year proposed resolutions to honor outstanding service by three former professors, by naming certain areas of the dental building as a tribute.

The University Senate concurred, and a ceremony to dedicate the rooms was held during the Homecoming '86 event.

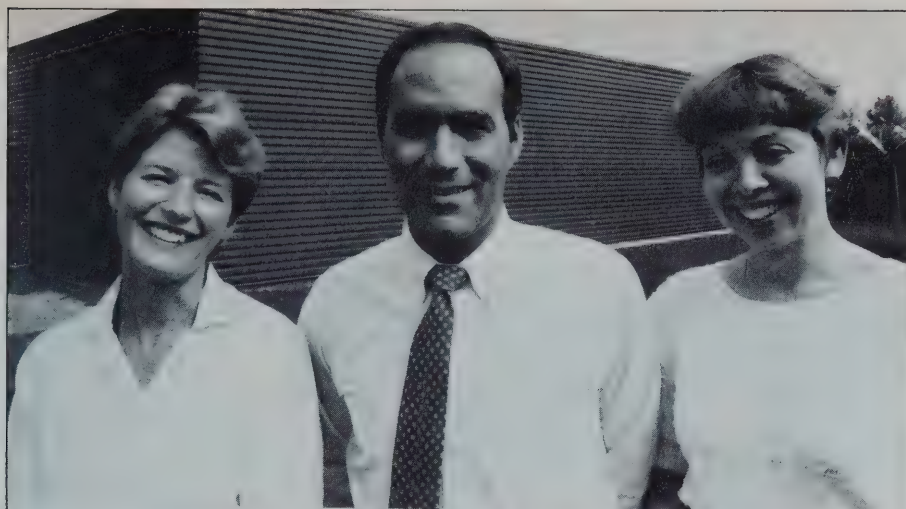
Professor George Archibald Brass, who served from the Faculty's earliest days in 1957/58 to his retirement in 1979 will be remembered in the naming of the first year laboratory as the George A. Brass Laboratory.

Professor Donald Balster Proctor who served the Faculty from 1969 until his death in 1984 has as a memorial the Donald B. Proctor Clinic. This was formerly referred to as the Oral Diagnosis area.

The second year laboratory is now known as the Harold W. Hart Laboratory, to honor the service rendered by Professor Harold Whitney Hart. Professor Hart was also a pioneer member of the Dental Faculty, serving from the earliest days of 1957/58 until his retirement from its full time academic staff in August, 1975.

The Alberta Children's Hospital in Calgary, recently opened its new Department of Oral Medicine and Surgery to serve the handicapped population of the province.

Dr. Richard B. Abrams, is the Clinical



(Left to right): Rona Fluney, Dr. Richard Abrams, Ann Hasselquist.

Director of the Department. A specialist in pediatric dentistry, Dr. Abrams also has extensive experience and training in hospital dentistry.

"Our mandate is to develop and provide quality patient care, at the interface of medicine and dentistry, principally for patients who, for reasons of medical diagnosis, handicaps or age, require special care or special settings," said Dr. Abrams. "The Department of Oral Medicine and Surgery is the only full time pediatric hospital dental facility in Alberta and, as such, is already receiving good support from the province's medical community," he said.

Dr. Abrams came to the Department from British Columbia Children's Hospital in Vancouver. He also worked for the Cancer Control Agency of British Columbia.

The Department, in addition to Dr. Abrams, also has on staff, Rona Fluney, a certified intra-oral assistant, who is the clinic coordinator and Ann Hasselquist, a registered dental hygienist.

The Vancouver and District Dental Society's Marketing Committee was busy during the past spring and summer on its latest project. The purpose was to contact various corporations (approximately 50 in total) in the Vancouver area and submit dental news into the companies' internal newsletters. The submissions were taken from the Dental Fact Sheets put forward in the Dental Awareness Program's "Good for Life" program.

A number of the companies agreed to publish these articles and the Marketing Committee's efforts resulted in reaching more than 100,000 people in a very cost effective manner.

The Committee is planning further projects for the upcoming year.

(Submitted by Gary W. Lunn, DDS, Marketing Committee Chairman).

Efforts of the Alberta Dental Hygienists' Association are expected to result in that province's first comprehensive legislation regulating the practice of dental hygiene. The regulations which spell out the details of discipline, definition of practice and the requirements for registration and licensure will come into effect following approval of the Central Occupations Council.

The Council will be a unique legislative manifestation of the team concept. It will consist of two representatives from the Alberta Dental Association, the Alberta Dental Assistants' Association and the Alberta Dental Hygienists' Association.

Among a group, tagged as "Women to watch in B.C.", in the September edition of *Chatelaine* magazine was Dr. Marcia Boyd of the Faculty of Dentistry, University



Dr. Marcia Boyd

of British Columbia, and President of the Association of Canadian Faculties of Dentistry. The writer, Suzanne Zwarun, noted that Dr. Boyd is the first woman president of the ACFD — "the job usually goes to dental school deans and colleagues suggest that Boyd is chewing a path through dentistry that could lead to her becoming Canada's first female dean of dentistry."

A new international dental organization was created during the past summer at a meeting in Oslo, Norway. The International Dental Hygiene Federation (IDHF) was established, with 10 national dental hygienists' associations. Canada signed the charter as a founding member.

The officers of the IDHF include: President — Wilma Motley (United States); Vice-President — Pat Johnson (Canada), and Secretary-Treasurer — Jo Gardner, also of Canada.

The founding of the IDHF was an outcome of the triennial meeting of the International Liaison Committee on Dental Hygiene held in Oslo in conjunction with the 10th International Symposium on Dental Hygiene. Pat Johnson and Jo Gardner were Canadian Dental Hygienists' Association delegates to the three-day session.

The CDHA will play host to the 11th International Symposium on Dental Hygiene in Ottawa, June 30–July 1, 1989.

A Florida dentist has filled what he believes is a vital need for patients and practitioners by establishing Health Cap, a unique credit card to help the public pay its health care accounts.

The dentist, Dr. Laurence E. Fendrich, says "there is a tremendous need for dentists to provide and patients to pay, for nice dentistry. I created this card because it provides the physicians and dentists with instant reimbursement, while enabling the patient to pay for services in monthly increments."

Dr. Fendrich says nearly 380 dentists and physicians have participated in the program since it was established last January, and 80 per cent of the participants are dentists.

Using an electronic banking machine, rented to participants for \$35 per month, the service can approve and automatically credit to the participant's chequing account any credit card transaction, including MasterCard and VISA. The combined fee for the practitioner for all credit card charges is 1.85 per cent of the total amount charged, Dr. Fendrich said.

According to this practitioner, Health Cap can eliminate credit problems, "dramatically improve the practitioner's cash flow," and increase productivity.

DENTAL AWARENESS PROGRAM UPDATE

Toronto Seniors' Line Gets Results

Can a telephone information and referral system really work to get dentists and patients together? A recent performance report on the Toronto seniors' Line says the answer is yes — as long as the service is aggressively promoted.

Last June, the joint CDA-Toronto Public Health seniors' dental health program initiated an ongoing dental information and referral service. The program supplied an existing government-run seniors' information line with Good for Life fact sheet copies for mailing to callers. In addition, the program provided (courtesy of the Ontario Dental Association) a geographic guide to Toronto dentists — so that operators could refer seniors to a local dentist able to speak their language or provide special facilities. Here's how the dental service worked out:

- With the launch of the seniors' dental health program, dental-health calls to the phone line increased by over 800 per cent. Interest remains high. Over all, dental health calls are up 240 per cent.

- During the first 10 weeks of the program, 73 per cent of callers specifically requested to be referred to a dentist. Requests for referrals later levelled off 34 per cent.

- Effective promotion yields impressive results. A single article in the Toronto Star more than quintupled the number of calls. And the release of new dental health flyers through pharmacies nearly doubled the number of calls for a two-week period.

Says DAP consultant Leslie Hayman, who analyzes the results, "There's a great demand for information and referrals. The program has had a major effect on Toronto seniors and on the dental health community."

The Lighter Side: 'Good for Life' hits Hollywood

Usually dentistry is the butt of Hollywood humour. Maybe this is about to change.

Peggy Sue Got Married is a major motion picture with Kathleen Turner, directed by Francis Coppola. It's been selected to close the prestigious New York Film Festival. The plot revolves around everybody's favourite fantasy: If you had your life to live over again, knowing what you know now, what would you do differently? When heroine Peggy Sue asks her grandfather that ques-



Dental Awareness on the silver screen: a scene from "Peggy Sue Gets Married."

tion in a climactic scene at the end of the film, he replies, "I'd take better care of my teeth!"

Sure enough, there *is* a connection between this line and the Dental Awareness Program. Screenwriter Arlene Sarner used to work with Manifest Communications — consultants to the DAP.

"When you're writing, you draw on all kinds of experiences", Sarner explains. "And with my background in dental awareness, I couldn't help but spread the message!"

The Lighter Side: Poetry for Prevention

Communicating prevention can be an art. Here are a few choice rhymes from Chatham, NB's dental-health limerick contest:

A young man named Willie Magool
Was a yappity sort of a fool
The dentist, named Keith,
Pulled out the fool's teeth,
And now all he does is drool.

Jason MacIntosh, Grade 8

There once was a girl named Pauline
Who cared about her dental hygiene.
She'd flash you a smile
You could see a mile
'Cause her pearlies were always so clean.

Lori Foran, Grade 8

There once was a boy named Jay;
He brushed his teeth all day.
His teeth were so white
That they lit up at night
And scared all the burglars away.

Jodi Le Bouthillier, Grade 8

There once was a fellow called Jack
Whose mouth was infested with plaque.
When you walked by
You could see flies
Go to his mouth for a snack.

Jason Wheaton, Grade 9

Media Highlights

- **Good for Life** "stinger advertisements", released during Dental Health Month '86, keep appearing in newspapers and magazines across Canada. Our clipping service has tracked 141 to date. Most popular so far: "Don't Wait Till It Hurts".

- **On CTV's "Lifetime"**, a lunchtime magazine-format show: a recent feature on dental anxiety — featuring a once-fearful patient and the professionals who helped her.

- **On Pay-TV's Life Channel:** dentist and gerontologist Dr. Jack Lee, key player in the joint CDA-Toronto Public Health seniors' dental health program, speaking about... seniors' dental health.

Resource Centre de documentation

BUYING OR SELLING A DENTAL PRACTICE

L'ACHAT OU LA VENTE D'UN CABINET DENTAIRE

1. Beck, L.C. *Guidelines for buying into a practice*. Dental Management, v. 21, no. 9, September 1981, pp. 36, 39, 41 passim.
2. Bernstein, R.L. *Buying an office condo*. New York Journal of Dentistry, v. 54, no. 6, September-October 1984, v. 54, no. 6, p. 257.
3. Cooper, T.M. and DiBiaggio, J.A. *Selling a dental practice through phased sale/role reversal*. California Dental Association Journal, v. 13, no. 4, April 1985, pp. 70-74.
4. Everett, R.C. *Buying or selling a dental practice*. Journal of the Michigan Dental Association, v. 68, nos. 4-5, April-May 1986, pp. 211-214.
5. Hammond, J.E. *7 steps to selling your practice*. Dental Economics, v. 67, no. 3, March 1977, pp. 59-64.

6. Jacobs, V.K. *Buying vs. leasing. Should you buy or lease your dental office?* Dental Student, v. 63, no. 8, May 1985, pp. 30-31.
7. Johnson, S.D. *Purchasing a practice: facts to guide your buying decision*. Dental Student, v. 60, no. 7, May 1982, pp. 24, 27, and 37.
8. Josselson, B.H. *Examine contract options when buying or selling a dental practice*. Dental Economics, v. 74, no. 5, May 1984, pp. 71-74, 76, 78 passim.
9. Koenigsberg, D. *Buying a practice from an estate*. Dental Economics, v. 75, no. 3, March 1985, pp. 107-109.
10. McEwan, D. *Real estate. Buying vs. leasing*. Journal of the Canadian Dental Association, v. 50, no. 8, August 1984, pp. 619-620.
11. Quinn, J.E. *Are you buying a darling or a dragon?* Dental Student, v. 63, no. 7, April 1985, pp. 30-34.
12. Quinn, J.E. *Minimize those risks when buying a practice*. Dental Student, v. 63, no. 6, March 1985, pp. 13-16.
13. Sarnier, H.A. *Renting or buying your own office*. CAL, v. 47, no. 10, April 1984, pp. 8-9 and 11.

14. Usinger, R.P. *Buying and selling a practice: it takes time, money and expert advice to avoid costly mistakes*. Dental Economics, v. 67, no. 10, November 1977, pp. 76-82.

One copy of the above articles is available at no charge from the library to all CDA members. Non-members will be charged \$5. This bibliography was generated with the help of MEDLARS.

LIBRARY ACQUISITIONS

TITRES EN BIBLIOTHÈQUE

The following current acquisitions are available on loan from the Resource Centre/Library.

Les titres indiqués ci-dessous sont maintenant disponibles à la bibliothèque/centre de documentation de l'ADC.

Levine, Norman, ed. *Current Treatment in Dental Practice*. Toronto: WB Saunders, 1986. 533p. 1 copy.

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The College of New Caledonia in Prince George, B.C. is inviting applications for the position of Coordinator - Dental Hygiene. This is a new position created as a result of the College receiving Ministry of Education approval to offer the program in Prince George, a new offering to central interior residents. Architectural drawings are presently undergoing Ministry review for an expansion to the main campus in Prince George, designed specifically to house the Dental Hygiene Program and provide modern facilities for the 20 students who will be enrolled annually in the program commencing September 1987. These facts should tell those interested in applying for this position that it will be a challenging one and will provide the rare opportunity to see a program evolve, literally from the ground up. There will be minimal teaching duties until September 1987 as the 1986/87 year is to be devoted to the development of the Dental Hygiene Program. Curriculum development, policy development, timetabling, selection of students, budget preparation and various administrative demands will occupy the initial year. As the qualified candidate, you will be a Licensed Dental Hygienist (or eligible for Licensure in B.C.), with a minimum of 5 years of practice as a Dental Hygienist. In addition, you will possess a Bachelor's degree (a Master's degree is an asset) and a minimum of 4 years' teaching experience in a College or University-based Dental Hygiene Program. Your salary will be commensurate with qualifications and experience. An excellent fringe benefit package and relocation assistance are available to you.

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Ms. Lorraine Winthrop
Personnel Manager

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D E N T S P L Y

THE MERCURY SCARE*

IF A DENTIST WANTS TO
REMOVE YOUR FILLINGS
BECAUSE THEY CONTAIN MERCURY,
WATCH YOUR WALLET.

Just how concerned should I be?" the CU reporter asked. Dr. Joel Berger, a Queens, N.Y., dentist, paused a moment before answering. "If I were you," he said, "and I had that test at 8 o'clock this morning, I'd have called two of my friends and made sure I had those fillings out by 9 o'clock tonight."

Berger is a leading proponent of the notion that mercury-amalgam fillings are poisoning the populace — a notion now espoused by hundreds of dentists across the country. He has issued his warning on numerous New York City-area radio and television talk shows and was featured last September on the CBS Evening News, where he was shown measuring the mercury level in a patient's mouth. The CU reporter, without revealing his affiliation, had gone to Berger for a consultation. What was told to him is similar to what is being told to thousands of consumers by dentists who remove allegedly dangerous fillings and replace them with new ones.

One hundred million Americans have "silver" fillings. The fillings are actually

alloys, or amalgams, of silver and several other metals. One of those metals is mercury, which makes up about half the filling. After the putty-like amalgam is inserted, it hardens in about one day.

Until recently, researchers believed that the amalgam released mercury vapor only while it was hardening. But in 1979, University of Iowa researchers found that chewing can release minute amounts of mercury vapor from old fillings. That finding sparked the present controversy over amalgam safety.

It's been known for centuries that mercury is a potent poison when swallowed, inhaled, or absorbed through the skin. Exposure to high levels for a long time can damage the brain and nervous system. The classic example occurred in the 19th century, when makers of felt hats dipped material into mercuric-nitrate solution to make the felt easier to shape. In so doing the workers

absorbed mercury through their skin and inhaled mercury vapor. Tremors, incoherent speech, difficulty in walking, and feeble-mindedness resulted. The problem was immortalized in the phrase "mad as a hatter" and by the Mad Hatter in "Alice in Wonderland."

Exposure to smaller amounts of mercury vapor can cause less-drastic symptoms, including insomnia, anxiety, and minor tremors. Even today, mercury is a hazard for some workers — mainly those in thermometer factories and in plants that use mercury to make chlorine and caustic soda.

Can mercury in fillings cause those or other health problems? That's the key question in dentistry's newest controversy. "Anti-amalgam" dentists such as Berger contend that mercury fumes from amalgams can cause problems ranging from depression and multiple sclerosis to fatigue and irritability. Their solution: Drill out the amalgams and replace them with fillings made from other materials.

The American Dental Association (ADA), on the other hand, insists that amalgam fillings are safe. Only people allergic to mercury — probably less than 1 percent of the

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population — need avoid them, the ADA says.

Dentists don't make up amalgam containing mercury out of any special love for the stuff. They use it because it's strong and durable.

Chewing exerts tremendous force on the back teeth — mouthful after mouthful, meal after meal, day after day. An amalgam filling can withstand that force for a long time before breaking down. A mercury-amalgam filling usually lasts five to 10 years, and some of them last as long as 40 years.

The main alternatives to mercury-amalgam fillings are composite resin fillings, which were introduced about 20 years ago and are made mainly of plastics. When amalgam fillings are removed because of "mercury toxicity," composite fillings usually take their place.

Composites can be mixed to match the color of the tooth, and so are often used for front teeth, where cosmetic considerations are important. But composites have several drawbacks. They usually last no more than three years in back teeth; they're more expensive than amalgam; and teeth filled with composites are more susceptible to recurrent decay.

Since late 1985, the ADA's Council on Dental Materials, Instruments and Equipment has provisionally accepted four brands of composite resins for use in permanent back teeth. But according to a council spokesperson, composites cannot yet substitute for amalgam in all situations, due to the "limited amount of current information" on their long-term performance in back teeth. Final acceptance must await the completion of additional clinical studies.

Research is now in progress on composites that can be chemically bonded to teeth. Such composites could rival amalgam fillings in durability. But CU's dental consultants say that composites strong enough for use in back teeth probably won't be available for 5 to 10 years.

Gold inlays may also be used instead of amalgams. They're durable but cost a lot, both for the gold and the installation, for they must be pre-shaped to fit the cavity and then cemented into place. They're not a very practical alternative to amalgam fillings.

When the reporter had called Berger's office for a consultation, the secretary had asked "What are your problems?". It was the Monday after a rough weekend. "Fatigue and headaches," the reporter answered. She told him he needed to come in for the mercury toxicity test.

So there he was, with a rubber tube in his mouth. Berger held the tube there for about 10 seconds as it sucked a small amount of air into a mercury-vapor analyzer. The first measurement was reassuring: The digital

readout said zero. Then Berger told the reporter to chew a stick of gum vigorously for 10 minutes. The measurement taken afterward was 32 — which prompted Berger's "out by 9 P.M." recommendation.

Berger said that 32 meant a mercury-vapor level of 32 micrograms per cubic metre. Government regulations, he explained, require that workers cannot be exposed to an average mercury-vapor level of more than 50 micrograms per cubic metre of air during an eight-hour working day.

A worker exposed to the CU reporter's mercury level, Berger said, would be regarded as having a "borderline toxic" exposure. And he would be carefully monitored for five years for signs of mercury poisoning.

A saliva test produced more bad news. According to Berger, the reporter's "highly acidic" saliva was corroding his fillings and adding to the mercury vapor released during chewing.

The message was clear: The reporter's fillings were endangering his health. How much would it cost to take them out and put non-mercury ones in? Berger counted up the number of fillings — eight — and gave his answer: \$580.

"Will removal of my fillings cure my fatigue and headaches?" the reporter asked. Berger said he couldn't promise that, since it would depend on the reporter's "unique physiological response" to mercury. But he said that many of his patients with the same problems had experienced relief once their fillings were out.

The mercury-vapor analyzer is a device customarily used in factories, where it measures the mercury levels in workplace air. Is it appropriate for dentists to use it, as increasing numbers of them are doing?

CU's dental consultants say that use of the mercury analyzer is a scare tactic to get patients to part with their fillings. Our consultants say that the device makes it easy for dentists to contend that mercury doses exceed occupational standards.

Vigorous chewing for 10 minutes creates heat and friction that maximize the release of mercury vapor. The analyzer senses the mercury contained in about one-half cup of air and multiplies it by 8000. That gives a readout corresponding to the mercury level in a cubic metre of air (about the amount inhaled in an hour). But for the patient, the exposure doesn't last eight hours. It lasts only a few minutes during chewing — and only a fraction of the vapor may be inhaled.

Our consultants point out that most people don't inhale through their mouths when chewing. And most people breathe through the nose, so that inhaled air bypasses any mercury vapor that may be in their mouths.

In assessing mercury vapor's effect on health, the key question is: How much actually gets absorbed by the body's tissues? Dr. Thomas W. Clarkson, of the University of Rochester School of Medicine and a leading authority on mercury toxicity, says that a mercury-vapor analyzer can't answer that question.

Clarkson told CU that a person's mercury exposure can best be assessed by measuring the mercury levels in blood and urine. The urine level provides the best measure of "body burden," or long-term exposure to mercury, while the blood level reflects recent exposure.

"I can promise one thing," Berger said. "Removal of your fillings will definitely lower your body burden of mercury."

Our reporter wondered: Just how heavy was his body's mercury burden? After all, he'd presumably been gulping mercury vapor ever since his first filling at age nine. And corrosive saliva had presumably been his constant companion.

Two hours after leaving Berger's office, he was in the office of CU's chief medical consultant. There he provided a blood sample and a urine specimen. He also had his saliva tested for acidity.

In two hours, his saliva had changed from "highly acidic" to neutral. The blood and urine samples were analyzed for mercury by a leading biomedical laboratory. For urine, the level was six micrograms per litre. Normal, according to the lab, is anything up to 20 micrograms per liter. The blood level was also well within the normal range.

The reporter notified Clarkson of his test results. Clarkson's advice: "Hold onto your \$580."

Almost everyone, Clarkson said, has detectable levels of mercury in the urine and blood. The main source of mercury in most people's bodies is the food they eat, seafood in particular. Clarkson expressed surprise that the CU reporter, who eats tuna at lunch most days, had such modest mercury levels in his blood and urine.

If dental amalgams really were poisoning people, Clarkson pointed out, the mercury levels in the general population (where fillings are commonplace) would rival those found among workers exposed to mercury. That's far from the case. In one study of 1107 people (mainly in the U.S.), 95 percent had urine levels of mercury lower than 20 micrograms. Adverse health effects appear when the level reaches about 150 micrograms or more, Clarkson said.

CU's dental consultants point out that replacing mercury fillings may cost more than money. Re-invading a tooth — drilling out amalgam and installing a replacement — can increase tooth sensitivity and weaken the tooth. Also, studies show, that drilling

out amalgam can produce brief but significant increases in mercury levels in the mouth.

According to CU's consultants, if anyone faces a health hazard from mercury fillings, it's dentists and their assistants. The average dentist handles between two and three pounds of mercury every year. Skin contact can result in absorption. Careless use and accidental spills can produce significant levels of mercury vapor in the air.

Surveys have shown that as many as 10 percent of dental offices have mercury-vapor levels that exceed 50 micrograms per cubic metre of air — the upper limit that the National Institute for Occupational Safety and Health considers safe for eight-hour exposures in the workplace.

Despite their higher exposures, dental personnel aren't being poisoned. Since 1982, the ADA has sponsored a mercury-testing service that measures urine-mercury levels in dentists and in people who work in dentists' offices. While average levels are about four times higher than in the general population, they are still well within the acceptable range.

According to CU's dental consultants, a major reason some dentists are jumping on the anti-amalgam bandwagon can be summed up in one word: fluorides.

Largely because of fluoridated drinking water and fluoride toothpastes, the incidence of tooth decay over the past 20 years has dropped by some 50 percent. So some dentists are suffering from a large cavity in their practice. Taking out and replacing amalgam fillings helps to fill their financial hole.

In CU's view, dentists who purport to treat health problems by ripping out fillings are putting their own economic interests ahead of their patients' welfare. Amalgams have been used for more than 150 years. Except for a few people with a genuine allergy to mercury, CU knows of no one who's been harmed by them. There's little danger of the U.S. becoming a nation of Mad Hatters.

Meet the anti-amalgamists

"Have you felt draggy, listless and even fatigued when you wake up? Have you felt depressed, irritable and jumpy, and lashed out at people for no good reason? Have you worried yourself sick because thoughts of suicide keep floating into your conscious mind? For many of my patients, the culprit is mercury toxicity."

So writes Dr. Hal Huggins, a 48-year-old Colorado Springs dentist and the leader of the anti-amalgam movement. Huggins claims at least 20 percent of people with amalgam fillings are "mercury toxic" — and the American Dental Association "is cover-

ing up the fact" because of its fear of lawsuits.

Huggins gets his own message out through books, articles, tapes, and lectures. He told CU that he has spoken to between 4000 and 5000 dentists, 1500 of whom have attended his seminars on mercury toxicity. Each day, he says, his office fields about 250 letters and phone calls from concerned members of the public.

Huggins says that he hasn't practiced dentistry for 2½ years. Instead, he's involved in "diagnosis and treatment planning." A three-to-four-hour consultation with Huggins costs about \$1500. Or for \$300, patients can get a consultation through the mail after completing an extensive computerized questionnaire.

Huggins reports that he mainly treats patients with multiple sclerosis — about 150 so far. He said that 80 percent of them have experienced "substantial improvement."

In 1983, such claims prompted the National Multiple Sclerosis Society to issue a memo to all its chapters. In it, the society said that there was no evidence that multiple sclerosis was related to dental amalgams, and that "this therapeutic claim . . . involves economic implications, in terms of expense to the patient and great profit to the dentist."

"The suicidal patient," Huggins has written, "is very special to us." He told CU that his success with suicidal patients is "better than 50 percent." For some of these depressed people, he said, "it just takes a couple of weeks and it's gone."

Huggins claims that in addition to multiple sclerosis and depression, mercury toxicity causes many other conditions, including epilepsy, leukemia, Hodgkin's disease, arthritis, mononucleosis, and premenstrual syndrome.

Huggins describes his treatment successes in his 1985 book "It's All in Your Head." That book has prompted the Colorado Attorney General's office to investigate whether he is practising medicine without a license.

Not surprisingly, Huggins prescribes amalgam removal as part of the treatment process. But fillings, he says, must be removed in the proper sequence. That's where the *Amalgameter*, a Huggins invention, comes in.

The *Amalgameter* supposedly reads the "electrical current" in each filling and determines if the current is "positive" or "negative." Huggins claims that highly negative fillings (which supposedly cause the worst diseases) must be removed first; otherwise, amalgam removal probably won't help the patient.

Huggins formed Tox Supply Inc. to market the *Amalgameter* (cost: \$350) to other dentists. Last November, the U.S. Food and

Drug Administration informed Huggins that the *Amalgameter's* promotion and distribution involved "serious violations of the Federal Food, Drug and Cosmetic Act." The FDA contends that "there is no scientific basis for the removal of dental amalgams for the purposes claimed."

Huggins sold Tox Supply in 1984. The FDA says he "continues to promote the *Amalgameter* for use as a medical device." Huggins denies it.

When people are "mercury toxic," amalgam removal is not enough, according to Huggins. He also recommends special nutritional supplements "to get rid of the body's stored mercury." Huggins markets the supplements through his company, Matrix Minerals Inc. Two of them, *X-IT* and *Eater's Digest*, prompted a warning from the FDA last November. The FDA contends that both products are "unapproved new drugs" whose labeling is "false and misleading."

Huggins claims to have been studying mercury toxicity since 1973. But when CU asked him for evidence that amalgam fillings can harm people, Huggins acknowledged that he has no clinical studies.

His evidence, he says, is contained in the 600 case studies stored in his computer. They have provided "a massive amount" of data that "all points in the same direction." Huggins told CU, "As soon as I take my course in statistics, I will start putting together the information."

In addition to Hal Huggins and Joel Berger (see page 1), some other prominent anti-amalgamists include:

Michael F. Ziff, an Orlando, Fla., dentist. Ziff travels around the country giving courses to dentists on mercury toxicity. He claims to have "completed research on over 400 articles on mercury toxicity."

Ziff boasts a B.S. degree in nutrition from Donsbach University. Critics describe Donsbach University as a diploma mill, with B.S. degrees selling for about \$2000. (See CONSUMER REPORTS, May 1985).

Sam Ziff, Michael Ziff's father, is the author of the book "Silver Dental Fillings: The Toxic Time Bomb." With his son Michael, he has co-authored a booklet, "The Hazards of Silver/Mercury Dental Fillings," which anti-amalgam dentists give away to their patients. Sam Ziff also has a degree from Donsbach University, in his case a Ph.D., which sells for about \$6000.

Roy Kupsinel, M.D., of Oviedo, Florida. Kupsinel publishes "Health Consciousness — a holistic magazine," which prints numerous articles opposing mercury-amalgam fillings. He markets *Amalgameters* and has written "A Patient's Guide to Mercury Amalgam Toxicity." He also publishes the rebelliously titled *Journal of the American Quack Association*.

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with their homework,
twice a day.



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"Colgate Toothpaste contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." Canadian Dental Association.

1. Schiff, T.G.: "The effect on calculus deposits of a dentifrice containing soluble pyrophosphate and sodium fluoride: a three month clinical study." *J. Clin. Prev. Dent.*, (June, 1986).
2. Lobene, R.R.: "A clinical study of the anti-calculus effect of a dentifrice containing soluble pyrophosphate." *J. Clin. Prev. Dent.*, (June, 1986).

Book Review Supplement

In this issue the Journal presents its first annual Book Review supplement. Designed to bring our readers up to date on what is currently being published for dental practitioners and auxiliaries, this special section of the Journal is made possible through the partial sponsorship of The C.V. Mosby Company Ltd.

BOUCHER'S "PROSTHODONTIC TREATMENT FOR EDENTULOUS PATIENTS" 9th EDITION

Edited by J.C. Hickey, G.A. Zarb & C.L. Bolender.

The contribution of Dr. Bolender, a new editor for the 9th Edition has positively influenced the content of this text.

C.V. Mosby Co.
Toronto, Ont.
Price: \$41.50
Pages: 630

This edition has a changed format size and paper quality from previous editions. The matt finished paper makes this edition much easier to read without glare. With minimal modifications to the text, the quality of the text has been improved from previous editions.

The organization of this textbook has five divisions. The first three sections represent the basic principles of managing patients and form the strength of this text. Sections four and five present variations of basic clinical procedures required to manage patients utilizing modified edentulous treatment techniques.

Section one covers the biomechanics and tissue response of the edentulous state. These chapters are well written and form the foundation for the management of edentulous patients.

Section two presents examination, diagnosis, treatment planning and the preparation treatment required prior to carrying out routine treatment procedures for managing edentulous patients.

Section three presents the basic treatment procedures for managing edentulous patients. This section is the strong point of the text. Biological considerations governing various procedures are well presented followed by the actual techniques required to accomplish treatment.

Section four presents treatment procedures for rehabilitating edentulous patients utilizing modifications of the complete denture clinical techniques. Included are procedures for managing patients utilizing remaining teeth via a tooth supported complete denture (over denture), immediate denture replacement, and single complete dentures against opposing natural dentition.

Section five presents supplemental prosthodontic procedures which include relining and rebasing exist-

ing complete dentures, repairing complete dentures and a brief chapter on an alternative to managing edentulous utilizing implants.

With the exception of the chapter on immediate denture treatment procedures, which is adequately presented, the remaining treatment procedures found in section four and five are somewhat abbreviated. However, there is adequate information presented to allow for the management of patients presenting with circumstances which will allow treatment utilizing one of these procedures.

Additional reading is sited at the end of some chapters. The majority of reference material available is found at the end of the text. This material is organized by topic with alphabetical listing of the authors. This is an excellent format for those interested in pursuing additional information on specific topics.

For the novice student, there is a possibility of some confusion arising by presenting alternative treatment procedures. Further organization and layout of this material in the future may alleviate this problem.

Many of the illustrations are composite photographs. The layout is not standardized and the legends are difficult to follow. The photographic reproductions in the text are somewhat improved from previous editions and are acceptable in quality.

Boucher's "Prosthodontic Treatment for Edentulous Patients", 9th Edition is a text that should be the standard text for undergraduate education. The reviewer can highly recommend this text because of the strong presentation of the biological considerations associated with an edentulous patient. This text is also an excellent reference source for practitioners who are involved in the management of edentulous patients.

*This book was reviewed by
Dr. W.B. Love,
Faculty of Dentistry,
University of Manitoba.*

SEDATION — A GUIDE TO PATIENT MANAGEMENT

Stanley F. Malamed

C.V. Mosby Co., 1985
Toronto, Ontario
578 pages

This soft cover publication takes the reader through an organized and sequential review of the management of the "problem" dental patient. While the literature is replete with feverish reviews of the literature, anecdotal accounts and retrospective clinical observations, this book very successfully attempts to unify them all.

This book is divided into eight sections which are further logically divided into 38 chapters which include a sequential discussion of everything from psychology, the history of anaesthesia and sedation (emphasizing the dentists' pioneering contributions!), pharmacology, numerous sedation and patient management techniques, through to the

physical diagnosis of the patient, possible medical complications and emergencies, and finally, general anaesthesia.

The author's personal opinions are obvious! These include the ridiculous concept of the dentist as a "tooth doctor", the need for continuing education, and a definite emphasis on the basic sciences as a requirement for the application and understanding of the discussed techniques. Dr. Malamed also emphatically states that this book is "... NOT a sole source of knowledge. ..." on this broad range of topics. The goals and objectives of each chapter are clearly spelled out by the author, while the summary and bibliography at the end of each chapter are quite complete and concise.

The specialist in anaesthesia may be somewhat disappointed by the relative lack of "the mechanism of action approach" with respect to physiology and pharmacology, as well as the sections on physical diagnosis and related medical topics. This book, however, is clearly written for the undergraduate dental student and is in fact the Department of Anaesthesia's required text for the second and third D.D.S. years at the University of Toronto. It is MUST reading for anyone involved in the treatment of the "unmanageable" or medically compromised patient and should be on the reference shelf of any dentist or physician.

*This book was reviewed by
Earle R. Young, BSc, DDS, BScD
(Anaesth), MSc (Pharm)
Asst. Professor of Anaesthesia
University of Toronto*

ESSENTIALS OF CLINICAL DENTAL ASSISTING (Third Edition 1984)

Joseph E. Chasteen

C.V. Mosby Co.
Toronto, Ont.
409 pgs.

In the preface, Dr. Joseph E. Chasteen states his intent is to "present the fundamentals of common clinical procedures that a dental assistant would likely encounter in general dental practice". He uses a style that is "geared to the prospective dental assistant who has very little or no previous knowledge of dentistry".

My initial observation is that Dr. Chasteen has successfully accomplished his goals. The five sections all are easily read and each item is explained that anyone without a dental background can follow and understand.

To further enhance these descriptions, excellent photographs and illustrations are abundant throughout the book. In this respect, Dr. Chasteen deserves a great deal of credit for his accomplishment.

However for a person without any previous knowledge in dentistry, the organization of the book must be questioned. The chapter on Dental Records pre-

cedes Tooth Numbering and Surface Annotation. How can you accurately chart the dentition if you do not know the proper nomenclature?

Many times in the early chapters, the author refers to class I, II and IV cavity preparations but does not define their classification until chapter 15 on page 188. These occurrences happen too frequently and leave the inexperienced individual not knowing what the author is talking about.

In the Foreword to this text, Doni Wingate Bird, C.D.A., R.D.A., says "One cannot teach for tomorrow using textbooks and techniques of yesterday". Somehow I feel that Ms. Bird either did not read this textbook before she made that statement or she is not practicing in a modern dental office. Dr. Chasteen spends too much time explaining procedures that have limited or no use in today's practices. When is the last time you took a culture for a root canal? Many universities no longer teach that technique. Three times as much space is spent explaining silver points rather than gutta percha. Two complete pages are wasted on beautiful pictures of "long handled" reamers and files. When is the last time you did a cohesive gold restoration? A full chapter of eight pages of excellent illustrations is devoted to it. How about the Markley "cemented" pins? And in periodontics far too much time is spent explaining the assistant's duties for a gingivectomy. All of these out-dated procedures detract from the excellent explanations, diagrams, and pictures of the pertinent information.

The author's elaboration on diet control related to cavities, weak areas in oral hygiene, shade and tooth selection, need for a bridge, patient management in the pedo section and emphasis on updated medical histories are all well done. How nice it would be to practice dentistry with a dental assistant who had a thorough knowledge of these topics as Dr. Chasteen describes them!

It is a pity that this edition contains so many out-dated procedures that are seldom used in a modern dental office. The author deserves full marks for explanations, illustrations, and pictures. However, it would be nice to see a new edition with more up-to-date techniques and many topics from this book left for the dental museum.

*This book was reviewed by
Maj. K.B. Musselman
Canadian Forces Dental Service,
CFB Borden, Ontario*

the treatment of functional disturbances of the masticatory system. The author covers acute muscle disorders, disc interference problems, inflammatory conditions of the temporomandibular joint, chronic hypomobility and growth disorders. His information is current and I found his approach to the treatment of disc interference disorders, a topic frequently missing from older textbooks, especially helpful. The chapter on occlusal splint therapy provides the general practitioner with the basic information necessary to carry out this treatment. Dr. Okeson gives sample case histories to illustrate situations when specific treatment protocols are indicated. Part IV concentrates on permanent occlusal therapy for temporomandibular disorders. Dr. Okeson defines centric relation as "the most superoanterior position of the condyles in the fossae with the discs properly interposed". This differs from the more traditional definition of centric relation as the most superoposterior position of the condyles in the fossae.

This book provides information that is useful to the general practitioner as well as the specialist. The author makes good use of clear, well-labelled diagrams and photographs to illustrate his text. I could not find any factors that detracted from the quality of this work. I consider that the author has accomplished his goal by providing a textbook that assists dentists in making logical treatment plans for patients with temporomandibular disorders.

*This book was reviewed by
Dr. Janet Karp,
Faculty of Dentistry,
University of British Columbia.*

CANADIAN DENTAL ASSOCIATION ORAL AND MAXILLOFACIAL SURGERY VOLUME (2)

D.M. Laskin

*C.V. Mosby Co.
Toronto, Ont.
774 pgs.*

Volume (2) is a sequela to Volume (1) which contains chapters on Applied Biomedical Sciences, Principles of Oral and Maxillofacial Surgery, Examination, Diagnosis, Control of Pain and Anxiety.

Having read Volume (1), the intent of Volume (2), is to use the knowledge acquired from Volume (1), for the practical application in the diagnosis and treatment of various maxillofacial surgical procedures.

Each chapter has many well drawn detailed pictures of various surgical techniques with accompanying explanations. There is a bibliography at the end of each chapter for further review. Periodic references to Book (1) are included. The 774 pages of Volume (2) are divided into seven parts. Each part contains several chapters on related subjects.

- **Part (1) — "DENTAL ALVEOLAR SURGERY"**, comprises chapters on Exonodontia, Excision of erupted and impacted teeth, Surgical aids in eruption of teeth, Transplantation, Replantation of teeth and surgical endodontics. Basic concepts and techniques are outlined in Part (1).

- **Part (2) — "PERIODONTAL SURGERY"**, covers soft tissue and osseous periodontal procedures. Indication of procedures for periodontal surgery are discussed with regard to soft tissue pockets, supra bony pockets, infra bony pockets, pedicle grafts, and free autogenous mucosal grafts. This is an excellent informative chapter by Dr. Bennet Klavin which covers most pertinent material necessary to understand, diagnose and manage periodontal problems.

- **Part (3) — "MANAGEMENT OF INFECTION"**, contains two chapters which discuss odontogenic

infections and chronic infections of the head and neck. The spread of infection into fascial planes, antibiotic and surgical treatments are outlined. Much of Part (3) can be found in other texts and is review material.

- **Part (4) — "PREPROSTHETIC SURGERY"**, discusses procedures to improve the bony alveolar ridge, and the alveolar soft tissues. These chapters include very common every day problems found in practice. Some of the more involved procedures mentioned are bone grafting, skin grafting and augmentation techniques using synthetic graft materials.

- **Part (5) — "IMPLANTOLOGY"**, consists of one chapter which reviews endosteal, mucosal, subperiosteal and trans osseous implants. Some of the later advances in implantology to date have not been included.

- **Part (6) — "TREATMENT OF CYSTS"**, review the diagnosis and management of cysts of the jaws and facial soft tissues. Newer classifications of cysts are outlined with a discussion of the one-time controversial keratocyst.

- **Part (7) — "TREATMENT OF BENIGN TUMORS OF THE ORAL CAVITY AND JAWS"**, contains four chapters on Benign Tumors, Hyperplasias, and Dysplasias of Soft Tissues, Benign Osteogenic Tumors of the Jaws, Benign Nonosteogenic Central Tumors of the Jaws, and Odontogenic Tumors of the Jaws. These chapters have been written by various authors and the material presented can be found in previously written publications. The most updated classification of tumors is included with surgical procedures.

- **Part (8) — "SPECIAL SURGICAL CONSIDERATIONS"**, are directed toward pediatric, geriatric and nutritional problems. Consideration is given to the pediatric patient with regard to drug dosages, dehydration and to special surgical procedures. Physical, pathological and psychological changes with interoperative and post-operative complications are stressed, with regard to geriatric patients. Nutritional management of the surgical patient relates in detail to concepts of nutrition, dietary adequacy, dietary standards, caloric balance, metabolism of carbohydrates, fats, proteins, the purpose and necessity of vitamins, macro minerals, micro minerals or trace minerals etc. Following the general discussion of nutrition, special indications and requirements are outlined, such as nasal gastric and parenteral feeding etc. This is a lengthy but informative chapter and a subject which is usually given inadequate attention.

Volume (2) does not include any information or subjects related to trauma or deformities. This text reviews most maxillofacial surgery procedures from the basic to the more complicated operative techniques, in a well written documented manner. It is an excellent learning source for the student and informative review text for the general practitioner and specialist.

*This book was reviewed by
Dr. John Armitage,
an oral surgeon in Hamilton, Ont.*

ORAL CANCER

G. Shklar

*W.B. Saunders Co.
Toronto, 1984*

This is a 324 page book divided into 30 chapters — eight written by Dr. Shklar, the rest by twenty-six other members of the dental, medical, and paramedical oncology "team" from the Boston area.

The chapters cover virtually every aspect of oral cancer from epidemiology to psychology. Dr. Mosadomi's chapter on "Burkitt's Lymphoma of the Mouth and Jaws" is by far the best in the book

FUNDAMENTALS OF OCCLUSION AND TEMPOROMANDIBULAR DISORDERS

J.P. Okeson

*C.V. Mosby Co., 1985
Toronto, Ont.
500 pages*

This author has taken an often confusing and complex topic, that of temporomandibular disorders, and produced a textbook that is easy to comprehend as well as thorough. In his preface, Dr. Okeson indicates that his goal is to assist dentists in making sound treatment decisions for their patients by providing a logical and practical approach to the study of occlusion and masticatory function.

This book is divided into four parts. Part I provides the reader with a clear anatomical description of the components of the masticatory system, as well as a thorough explanation of the physiology and biomechanics of the system. Part II provides information on the etiological factors that contribute to temporomandibular disorders and explains, in detail, the diagnostic process involved in recognizing reversible and irreversible disturbances of the masticatory system. Part III deals, in a practical fashion, with

and hopefully will serve as an example and inspiration to the other authors when it comes time for revision. This chapter is up-to-date, thoroughly referenced, and carefully written with a constant commitment to meaningful clinicopathologic correlation.

Other very fine chapters include:
"Experimental Pathology of Oral Cancer",
"Screening for Oral Cancer",
"Basic Principles of Radiotherapy",
"Radiotherapy in Carcinomas of Oral Cavity and Oropharynx",
"Dental Management for Cancer Patients Receiving Head and Neck Radiation",
"Surgical Therapy of Malignant Tumors - Basic Principles",
"Basic Principles of Chemotherapy",
"Chemotherapy for Advanced Oral Cancer", and
"Oral Complications of Chemotherapy and Their Management".

The 20 other chapters, in my opinion, require moderate to extensive revision. In a time of information overload, we not only have the opportunity but, in fact, are forced to be extremely selective of what we read - there is simply no time for material which is not accurate, concise, up-to-date, well-written, properly referenced, and carefully tailored to our specific requirements.

The bottom line is that 99 pages of this book are worthwhile reading - should you part with \$72.60 now, visit the library, or wait for a revised edition?

Reviewed by
John Lovas, BSc, DDS, MSc, MRCD(C)
Division of Oral Pathology
Faculty of Dentistry
Dalhousie University

GENERAL ANESTHESIA AND SEDATION IN DENTISTRY

**C.M. Hill &
P.J. Morris**

Wright PSG Publishing Co. Inc.
Littleton, Mass.
\$74.50 U.S., 151 pgs.

This book is presented as a concise and readable account of general anesthesia and sedation as related to the practice of dentistry. Patient assessment is based upon consideration of physiological, pathological and drug induced problems. Treatment aids and factors influencing their use are shown on a flow chart as a part of patient assessment. Good attention is given to detection of problems in the pre-op evaluation and their effects on the treatment plan.

The pharmacology of inhalation and intravenous agents is then considered including interesting historical perspectives. North American readers will encounter some difficulty with differences in the drug names. A good presentation of the stages of anesthesia is done. Considerable emphasis is placed upon avoidance of airway obstruction as it is considered the most common problem in clinical practice. Signs of airway obstruction are reviewed in detail including mechanics of breathing and gas exchange.

A listing of equipment required for proper administration of inhalation and intravenous anesthetics is done with good general discussion of types of vaporizers and circuits. Relative analgesia is discussed with attention given to patient co-operation as well as differences in application of this technique versus other forms of anesthesia. Excellent anatomic review is done with regard to I.V. sites. The section on oral medication includes a listing of drugs with the more popular ones included.

Endotracheal anesthesia is discussed with enough detail to give the dental student and practitioner a basic but thorough understanding even if it is not routinely used in the office. Finally an excellent chapter is included concerning complications and emergencies.

This text has one limiting factor and that appears related to differences in drug names between Britain and North America. It is however an appropriate text for the dental student who is encountering anesthesia practice in the dental office for the first time.

This book was reviewed by
Dr. Scott Shafer,
an oral surgeon in
Waterloo, Ontario.

EDUCATING THE DENTIST OF THE FUTURE: THE PENNSYLVANIA EXPERIMENT

**D. Walter Cohen,
Patricia P. Cormier &
Joanne L. Cohen**

University of Pennsylvania Press
Philadelphia, Pennsylvania
218 pgs.
\$17.95 U.S.

In the past twenty years only two Universities in the United States, Kentucky and Florida, have started new dental schools and experimented with somewhat innovative approaches to curriculum design. Unfortunately, even with their philosophically fresh starts, both of these schools have returned to a more "traditional" approach to dental education. Few faculties of dentistry with on-going programs ever overcome the inertia of their daily routine to conduct a serious experiment with their curriculum. Given this perspective, the "experiment" at the University of Pennsylvania described in this book takes on even more significance as a very serious approach to challenging the current, usually fragmented approach to dental education.

In 1971 a new Dean, Dr. Walter Cohen, arrived at the University of Pennsylvania and initiated what proved to be a seven year planning process culminating in a three year experiment, from 1979-82, designed to recast pre-clinical and clinical dental education. Dr. Cohen and Dr. Cormier, the educational co-ordinators of the experiment, have collaborated to produce a very readable book which elaborates on the planning process, the curriculum modifications, the experiment, and its results. The first three chapters describe the events which lead up to the experiment including several feasibility studies, long-range plans, and Faculty recommendations to the University Senate.

Three basic premises which guided the planning included: 1) group and other forms of practice which involve expanded function auxiliaries will eventually replace solo practice; 2) team health care will eventually replace referrals among isolated specialists; 3) a variety of factors will reduce the need for specialists and heighten the need for general practitioners who should be trained to a higher level than our current graduates.

Chapters 4 and 5 describe the design and implementation of the experiment. Three central themes followed in the design of the experimental curriculum included: 1) a commitment to an organized introduction to the practical aspects of patient care including human behavior, preventive dentistry, and integrated pre-clinical and clinical teaching in the company of auxiliaries, 2) creating a pre-clinical and

clinical environment which enables the side by side training of first through fourth year dental students, fifth year residents and dental hygiene students; and 3) perhaps the most exciting aspect of the experiment, clinical practice in one of two alternative clinical/teaching environments.

The two clinical models tested in the experiment (and which continue today) are based on the premise that faculty must be more involved in clinical patient care than has occurred in the past. Clinic Model "A" took faculty one step beyond their usual instructional role and required them to assume an "extended" role in patient treatment and to become "preceptor/teachers" while working closely with the fifth year residents on the more complex aspects of clinic patient needs. The second model for clinical instruction, Clinic "B", was indeed a radical departure from the norm. Not only did it involve the by now familiar mix of first year students through fifth year residents, the clinic operated as a large and virtually independent faculty practice unit. Faculty were expected to earn their salaries while acting as "preceptor/teachers" and the clinic was designed to be self-supporting. A new non-tenured but stable career path was developed for the clinician-educators participating in the experiment as they were not required to follow the "fully-involved" academic pathway which full-time dental faculty are usually expected to pursue.

Chapters 6 and 7 evaluate the educational and managerial aspects of the experiment. Educationally the students in both the Model A and Model B projects fared as well or better, on a variety of educational measures, than the 90 percent of the student body who continued in the regular curriculum. One result of particular interest was that the experimental students found their clinical tasks and the interaction with faculty far more enjoyable than reported by the regular students. Further evidence of this was the high interest in some graduates of the experiments to return as faculty members after their residency. From a management point of view, Model "B" eventually became financially self-supporting after increased emphasis was placed on "collections" by both students and faculty. Clinic Model "A", again after some work on collections, became generally less costly than the general clinics in the school but the uncontrolled use of supplies needed to be curtailed and other monitoring procedures put in place in order to improve cost control.

Chapter 8 presents the authors' summary and conclusions. Faculty, students and observers agree that the experiment showed that alternative forms of preclinical and clinical education are not only possible but may also have a very considerable positive impact on the attitude of students as they progress through the system. The authors also report that the selection of "clinician/educators" is of major importance to the success of these educational models.

On the whole the book is well written, although it goes to considerable lengths to describe the historical events leading up to the experiment. While this information develops the context, this reviewer was also looking for more elaboration on the inner workings of the program and the many smaller problems which accompany such a major undertaking. The tables and diagrams which are offered throughout the book are well laid out and very helpful. Appendices, footnotes and an index are also well presented.

In summary, dental educators (and other leaders within Canada's dental profession) should read this book as it outlines one possible future for dental education and surely prompts the question "Are we satisfied with our present clinical curriculum?". Anyone who answers in the affirmative should either resign or re-read the book.

This book was reviewed by
Dr. John Eisner
Faculty of Dentistry,
Dalhousie University.

CLINICAL MANAGEMENT OF HEAD, NECK AND T.M.J. PAIN AND DYSFUNCTION

Dr. Harold Gelb

W.B. Saunders Co. Canada Ltd;
Toronto, Ont.
\$94.50, 637 pgs.

In this, his second edition, Dr. Gelb provides a multi-disciplinary approach to the diagnosis and treatment of cranio-mandibular disorders. He accomplishes this by crossing specialty and professional boundaries, with the inclusion of contributions from 26 authors, and an expert in his respective discipline.

The text is very comprehensive in nature encompassing such diverse topics as, Oral Orthopedics, Computed Tomography, Hypnosis, Biofeedback, Myofunctional Therapy, Orthodontics, Applied Kinesiology and Osteopathic Techniques, to list just a few.

Although temporomandibular joint disorders have been recognized for many years, it is only within the past decade that there has been such a marked proliferation of literature on the subject. With the increased pressure for the publication of new material there has as yet been too little time for scientific validation of much of the clinical documentation. As a result a great deal of the printed matter is a combination of science, pseudo-science and personal opinion.

Dr. Gelb in a May, 1983 article in the New York State Dental Journal wrote, that each clinical modality can be rated as to its scientific validity as either 1) scientifically documented, 2) clinically documented, or 3) clinically practised and reported.

His book must be read in the same context for, in varying proportions, it contains all of these three elements. The reader should be aware that there are chapters which could be categorized as "clinically practised and reported" and that they are presently not universally accepted. It remains to be seen whether in time, some of the less acceptable procedures described, can be scientifically substantiated.

In his preface Dr. Gelb expressed the hope that the concepts, diagnostic procedures and therapeutic approaches presented in his book will help professionals provide total care of acutely and chronically ill patients. Most readers will agree that he has adequately fulfilled his mandate.

I can recommend this book as a useful addition to any library.

*This book was reviewed by
Dr. S.M. Borden,
Faculty of Dentistry,
University of Manitoba*

CHILD DENTAL HEALTH

P.J. Holloway & J.N. Swallow

Third Edition
John Wright & Sons Ltd.,
Littleton, Mass.
\$25.00 U.S., 225 Pages

This is the third edition of a text that was first released in 1969. The rapid advances that have occurred in the field of dental health during that period of time have somewhat outdistanced the usefulness of this book. I am sure that at its date of initial publication it was considered adequate for dental undergraduate usage. Today it is this reviewer's opinion that its primary appeal would be as a text for the teaching of dental auxiliaries. By that, I mean that it provides a concise but superficial overview of the subject of paediatric dentistry.

Today's serious North American paediatric dental clinician would be ill at ease with many of the clinical recommendations made in the first section of the book entitled "Care of the Individual".

As an example, the differences between North American and British teachings with regard to the management of premature tooth loss seem to be significant. The authors present an argument for the elective removal in a balancing fashion of sound non carious antemere primary molars under certain circumstances. This concept is carried a stage further when the authors suggest that there is occasionally a case to be made for the deliberate removal of a healthy permanent first molar when the loss of the counterlateral tooth is inevitable. In the reviewer's experience such proposals are contrary to the general teaching in Canadian Faculties of Dentistry.

On the other hand the chapter dealing with dental facial injuries is excellent. The authors have succeeded in dealing with all of the major presenting forms of dental trauma in both the primary and permanent dentitions in a comprehensive fashion. At the end of the chapter they have provided the student or practitioner with an excellent point by point check list as a guide to follow in the management of the various classifications of dental injuries that can occur. The one glaring omission is the lack of reference to any applications of the acid etch composite resin technique in splint fabrication. The cold cure acrylic resin splint technique described is now primarily of historical interest.

The second and shorter section of this book is entitled "Care of the Community". In capsule fashion it provides a superficial overview of the rationale behind and the steps necessary to implement community dental health programmes. As only 40 pages are devoted to this very extensive topic, little but an overview is provided.

In summation it is my opinion that this book would serve well as a reference text on the subject of paediatric dentistry for students in the dental auxiliary disciplines. It might also suffice as an introductory text for dental undergraduates, or superficial review for the general dentist. It is not detailed enough to be a serious reference in the area of paediatric dentistry.

*This book was reviewed by
Dr. A.F. Dungy,
Chief of Dentistry,
Children's Hospital of Eastern Ontario,
Ottawa, Ontario.*

CLINICAL DYSMORPHOLOGY OF ORAL-FACIAL STRUCTURES

Michael Melnick,
Edward Shields &
Norbert Burzynski

John Wright, PSG Inc.
Littleton, Mass.
532 pages \$54.50 U.S.

This is a very good book. The subject is a vast one, and the authors have taken the approach that they are presenting a text book for interest and not preparing an all-inclusive encyclopedia or compendium. It is inevitable, then, that the coverage is uneven, with some topics considered in great depth, others barely covered at all. The strengths and interests of the authors and their 26 contributors show clearly, but the result is a very readable, very interesting and very enlightening text.

Dysmorphology of oral-facial structures refers to all of the developmental abnormalities of the face. The first section of the book discusses the foundations of craniofacial genetics, including an excellent

review of epidemiology, principles of multifactorial associations, the interaction of genes and environment, and some environmental and nutritional causes of cranio-facial malformations. There follows a great deal of information on genetic mechanisms, chromosome and gene structure and actions, including a chapter on mathematical genetics and twin studies. This section concludes with a chapter on specific dental diseases and abnormal structures.

The second part of the book is a bioclinical approach to craniofacial genetics. Detection of anomalies of the head and neck by clinical and radiological examination is well covered, with a great deal of information on many of the severe craniofacial anomalies, including cleft lip and palate, Crouzon and Apert syndromes. Malformations of the skin are discussed. There are several chapters on the dentition, including tooth shape and size, and enamel and dentition defects. Finally, there is a chapter on genetic counselling for parents and patients.

Surgical and dental management is reasonably up to date, although some of the treatment methods advocated are arguable. A good example of this would be in the treatment of hemifacial microsomia which could be hotly debated. Oddly, there is no treatment information of any kind on cleft lip and palate, the most common of all craniofacial anomalies.

For the most part the book is well written and pitched at a level that is understandable for those not specialists in this field. The many diagrams and tables provide excellent explanations and summaries of difficult concepts and groups of data.

This is a book I would recommend for students and clinicians to browse through and use for a reference.

*This book was reviewed by
Dr. R. Bruce Ross,
Head, Div. of Orthodontics,
The Hospital for Sick Children,
Toronto, Ont.*

PRIMARY PREVENTIVE DENTISTRY

Norman O. Harris, D.D.S., M.S.D.,
F.A.C.D.
Arden G. Christen, D.D.S., M.S.D.,
F.A.C.D.

Reston Publishing Company Inc. 1982,
Reston, Virginia 22090,
528 Pages, Hardcover, \$29.95 US.

This textbook has been written to provide a common base of knowledge in primary preventive dentistry for dentists, hygienists, assistants, and public health educators, and to encourage future cooperation and working interrelationships.

It is well indexed and referenced, and designed for both self-paced and class teaching situations. The 23 chapters outline the causes and steps needed to control dental caries and periodontal disease on the part of the patient, dentist, hygienist, and support staff. Methods are also included for dealing with special target groups (i.e. school children, old and aging patients, the neurologically handicapped, and patients in a hospital setting) and for developing effective community dental health programs.

Simply stated, this text outlines primary preventive dentistry procedures that simultaneously prevent future dental health problems, and help to compensate for limited past damage. Five general approaches to dental disease control are outlined in detail: Plaque Control, Use of Fluorides, Use of Pit and Fissure Sealants, Sugar Discipline, and Education.

The chapters on the life cycle of dental plaque, caries development, and the etiology and progress

of periodontal disease, are clear and concise. Many different oral hygiene aids and methods are carefully listed and compared in terms of effective plaque removal, tooth cleansing, level of abrasion, and gingival stimulation. The sections on fluoride contain not only information on the mechanism of action, but also on available preparations, dosages, and recommended therapies.

The chapter on sealants provides criteria for selecting teeth to be sealed, requisites for retention, technique, and the reasons why a major effort is needed to encourage their use in conjunction with other primary preventive procedures.

In chapters on "Caries Activity Testing", "Sugar and Other Sweeteners", and "Nutrition and the Plaque Diseases", caries status forecasting is discussed, the relative cariogenicity of foods are outlined, and the effects of nutrition on the etiology of periodontal disease are explored from both local and systemic points of view.

There are also chapters on "Understanding Human Motivation", "Patient Education" and "Dental Health Programs". The second-last chapter features practical clinical applications, appointment scheduling, and special caries counselling. It also includes a helpful appendix with a sample patient interview form, fact sheets, a plaque index, and nutrition questionnaires, to make office implementation much easier.

The final chapter deals with the future of primary preventive dentistry research, the potential effects of diet modification, and various proposed methods of increasing host resistance (i.e. timed release fluoride and anti-microbial agents).

This text is a definite asset, both as an undergraduate dental/hygiene/community dentistry text, and for post-graduate reference. It also provides an opportunity to review the theories and scientific research that have helped to make primary prevention the hallmark of dentistry.

*Reviewed by
Dr. W.K. Hettenhausen
Executive Director*

**YOUR TEETH FOR A LIFETIME
FOUNDATION**

Thunder Bay, Ontario.

COMMUNICATION AND BEHAVIOUR MANAGEMENT IN DENTISTRY

Michael J. Geboy

*Baltimore: Williams & Wilkins
Baltimore, Maryland
1985, 165 pp., Price: \$16.95 U.S.*

This slim volume offers basic information in interpersonal communication. The language is non-technical throughout. Each chapter has bibliographic footnotes and there is an adequate index.

The research into the importance of the psychological and social factors in health care is progressing at such a rate that the author quotes:

"Ignoring these factors is not an error of ethics or courtesy, it is a scientific error" (p. V).

The sections on language, listening skills and non-verbal communication present a wealth of material in an organized and easily readable fashion. The examples are invaluable and the comments bring the essentials into focus. Alternate approaches are illustrated and the likely outcome of the interactions described.

The chapters on patient anxiety and non-adherence present the extensive clinical research material in these areas. Development and scope of each problem is briefly explored.

Several techniques for anxiety management are

described. The appendix gives a progressive relaxation script and a guided imagery script. Though not everyday tools in the dentist's armamentarium, knowledge of these techniques can be a valuable asset.

The last two chapters discuss the geriatric patient and the handicapped patient. An interactive view of aging is presented. We are shown ways to work around the older patient's physical limitations and how to view the environment as a potential agent for change.

Treating the handicapped patient is described in practical terms with examples of how to modify office routine to accommodate people with special needs. Establishing rapport outside the treatment room, giving the patient totally undivided attention, using the 'Tell-Show-Do' procedure are just some of the techniques that may lead to successful outcomes of a treatment session.

This volume is brimming with information which every health care professional needs. The clear presentation brings this knowledge within easy reach of the reader, to be assimilated at one's own speed.

I highly recommend this book to dentists, students and their teachers.

*This book was reviewed by
J.A. Krupansky
Assistant Professor,
Restorative Dentistry
Faculty of Dentistry
University of Toronto*

1985 YEAR BOOK OF DENTISTRY 50th ANNIVERSARY ED.

Edited by D.W. Cohen et al.

*Year Book Medical Publishers Inc.
Chicago, Ill. 490 pgs.
Reviewed by
J.D. Anderson, BSc, DDS, MScD*

The 1985 Yearbook of Dentistry is the fiftieth anniversary edition of the annual dental literature survey. Published by Year Book Medical Publishers Inc., it is one of a series of year books covering twenty-nine medical disciplines.

The present edition covers all the traditional clinical disciplines of dentistry. It also includes a section on craniofacial growth and development, a section on Dental Practice (Public Health, Genetic Dentistry (sic), Stress and Consent), and one on Oral Physiology and Temporomandibular Joint. Each section is subdivided into topic areas within the discipline which greatly facilitates the use of this book as a reference text.

The bulk of the information is presented in the form of abstracts (average 1-2 pages long) from a total of sixty-three journals. The abstracts are generally clear and concise. They are often accompanied by tables, charts, photographs or line-drawings as necessary to illustrate the article. The reproduction of the radiographs and photomicrographs is unusually clear. (The publishers are to be congratulated for finding a paper that will yield such high quality illustrations on a surface that is free of glare. This is a great boon to the reader.)

Each abstract is followed by a short paragraph of commentary by one of the editors. These remarks usually relate the article to the present state of knowledge on the subject or to other articles. Unfortunately, the comments occasionally become very subjective in their style and content which interferes with the reader's train of thought.

Readers with an orthodontic interest will find emphasis on occlusal and craniofacial growth and development, as well as relatively few articles on

clinical treatment. The paedodontic section concentrates on behavior, and radiography. Pit and Fissure sealants, their retention, strength and effectiveness dominate the Preventive Dentistry and Cariology section. The effects of sucrose restriction and fluoride release are other topics. Not surprisingly, the Restorative Dentistry and Dental Materials section is given over almost entirely to composite resins, their retention and use in posterior applications.

The Prosthodontic section moves quickly over fixed and removable partial dentures, but deals at length with implantology and the physiology of occlusion. An epidemiological approach begins the chapter on periodontics followed by a substantial section on the microbiology of plaque and plaque control.

The Oral Physiology section includes numerous electromyographic surveys and tests of response to occlusal appliance therapy.

Malignant neoplasms are the main subject in the Oral Pathology chapter. No particular theme dominates the Oral Medicine chapter, though many of the articles concentrate on the dental management of a variety of medical problems.

Finally, the chapter on Oral Surgery is well balanced between diagnosis and treatment subjects. Temporomandibular joint treatment is a feature section, as well as some articles on preprosthetic and orthognathic surgery.

The Year Book ends with a very generous subject index covering the last five editions.

The Year Book is useful 'general interest' reading for the truly diversified general practitioner. It cannot deal with any subject area in depth and, therefore, should not be read as a review of the state of knowledge on any given subject. By its selection process, the Year Book then serves to highlight the current issues in each of the disciplines and tells the reader what subjects are currently under investigation. For this, it is recommended.

*This book was reviewed by
Dr. J.D. Anderson,
Director of Clinics,
Faculty of Dentistry,
University of Toronto.*

PRINCIPLES AND PRACTICE OF ORAL MEDICINE

**Sonis, S.T., Fazio, R.C. &
Fang, L.**

*W.B. Saunders Co.
Toronto, Ontario
1984 (560 pgs.), \$48.60*

To understand and appreciate this interesting book is to read the preface, at least twice. It is instructive to quote from a portion of this introduction; "... in dealing with oral disease and oral manifestations of systemic disease... this work does not attempt to be a compendium of every oral condition... we have continually asked ourselves to define the 'bottom line' for the student and the practitioner". In setting out to accomplish this task, the authors have produced a unique text.

This publication is, in reality, two books in one. The first and major portion deals with the dental management of medically compromised patients, while the second section represents a more traditional approach to oral medicine and covers the evaluation and management of diseases of the oral mucosa. In addition to their content, the two sections have quite separate and distinct formats.

The first portion of the text consists of 34 chapters arranged into 11 sections. Each chapter contains a brief introduction to a group of medical conditions including basic medical investigative procedures and management. Then, based on this background

knowledge, the reader is presented with the unique dental management aspects of patients relevant to these particular conditions. Each discussion concludes with several specific examples of patient management based on six categories of nonsurgical and surgical dental procedures. This results in a 'set' of appropriate dental management protocols appropriate to the particular medical diagnosis and therapeutic regimen. Every chapter in this section of the book is accompanied by a set of summary tables, outlining in a clear and concise manner the salient points discussed in the preceding text.

The oral medicine section of the text is somewhat abbreviated when compared to other major works on this subject, but it contains all the basics. If you include the numerous, well structured summary tables and flow charts that supplement the text, this portion of the book covers the area quite adequately. Chapter 42 contains an especially good presentation on the oral complications of cancer chemotherapy.

The black and white illustrations are of good quality and adequately referenced, although the occasional photograph contains arrows and pointers for which there are no accompanying explanations. Additionally, I prefer to have a bibliography presented at the conclusion of each chapter rather than a list of grouped references at the end of the book. These are minor faults however, and do not detract from the main thesis.

Although one can question a 'recipe' type of approach to management in idealized clinical settings, the various subjects are well presented, the text is concise and the format is clear and uniquely refreshing. I would not hesitate to recommend this text for an undergraduate dental curriculum and it makes a very useful addition to one's dental/medical library. The publication of *Principles and Practice of Oral Medicine* at this time is especially relevant as our profession is being challenged by an increasing number of patients who, despite having significant medical problems, are managed by ever more sophisticated medical protocols, and who are seeking and being provided with the best possible dental and oral care.

*This book was reviewed by
Dr. R. W. Priddy, Chairman,
Div. of Oral Pathology,
The University of British Columbia*

THE KURER ANCHOR SYSTEM An Approach to the Restoration and Re-use of Endodontically Treated Teeth.

Peter F. Kurer

Quintessence Publishing Co., Inc. 1984
Chicago, Illinois
279 pages, \$78.00 U.S.

Kurer has provided a necessary, detailed textbook which will serve as a reference for those dentists who elect to employ the Anchor system in the restoration of endodontically treated teeth. Reasons for the development of the Kurer post system, the indications which dictate the use of a specific post type, and the techniques for proper use, are discussed.

However, this book falls short of being an all-encompassing text regarding the multi-disciplines which must be considered when restoring the involved teeth with posts. This is evidenced by the references at the end of each chapter, which are few in number where present, and not representative of the pertinent post studies.

The textbook format, enhanced by the excellent quality of the intra-oral photographs and radiographs, allows the reader to study the individual section of interest and concern as the chapters of this

book are complete in themselves. The only criticism of this format is that it lends itself to redundancy.

Kurer, the major author, describes the engineering principles upon which the design of the post system is based. He alludes to the retentive problems which dentists have encountered and offers the threaded parallel post as the solution. Contributing author, Yamashita, supports the clinical use of the Anchor system while Bottger and Stuttgen provide reasons for adoption of this system in teaching institutions. Others discuss various aspects such as the material of choice for the manufacture of posts, the effects on materials in the oral environment, core materials, and the interaction of posts and teeth. Caputo and Standlee, contributing authors well known for their various publications on posts, report on both the purpose and the physical properties.

Contributing author Darvell (Chapter 3), concludes that the "weak link in the chain" of factors which can fail is the practitioner himself. Kurer's attempt to relate the mechanical disciplines of prosthodontics to the biological aspects of endodontics does not strengthen that link. This is exemplified where Kurer discusses post placement in those canals where silver point treatment has been rendered (Chapter 7). He says that if the silver cone comes loose during manipulation, and if this "is carried out under a rubber dam", then the removed point can be "dipped into a suitable sealing cement, and replaced into the root canal". The above statement is unacceptable and indicates Kurer's lack of understanding of endodontics and the inflammatory manifestations of the advocated technique. Other concerns are the diagrammatic misrepresentations of root anatomy, the justification for placement of oversized posts within tooth roots (pp. 68), and the apparent lack of consideration as to which roots are most suitable for post placement, (Fig. 4, pp. 112). In this regard, the textbook must be criticized as it does not reflect a thorough understanding of the interrelationships of the various dental disciplines and as such, will result in the unsuspecting dentist performing sub-standard or iatrogenic procedures.

The above critique dictates that this book not be considered as a reference text to explain the rationale for post use. Rather, it should serve as a manual which explains Kurer's technique. It cannot be over-emphasized, however, that one who elects to use this book must be aware of its shortcomings with regard to dental anatomy, endodontics, and the principle author's bias.

*This book was reviewed by
Dr. R. S. Greenfeld,
who practices endodontics in
Richmond, B.C.*

OPERATIVE EXTRACTION OF WISDOM TEETH

Peter Tetsch & Wilfred Wagner

Wright P.S.G. Publishing Co. Inc.
Littleton, Mass.;
\$27.50 US, 160 pgs.

It is interesting to note that over the last twenty-five years so much has been written about the exotic aspects of oral surgery and so little about the more seemingly mundane, surgical procedures such as the removal of the impacted third molar.

Unquestionably the surgical removal of third molar teeth fully or partially impacted is the most common surgical procedure carried out in everyday dental practice. An up to date summary of current methods is long overdue.

There are seven chapters, the first of which is an introduction to third molar surgery. From a historical viewpoint it seems that there is a causal relationship between the evolutionary decreasing jaw size

and diet with the increasing incidence of third molar impaction.

Chapter two deals with general principles and definitions. There are major variations in terminology, the most prominent of which are concerned with the use of the terms retention and impaction and the described sub-divisions thereof. The North American reader will find however that the terms when defined are basically synonymous.

Chapters three, four and five quite logically follow in sequence the indication for surgical removal, the surgical procedure in normal situations, and the surgical procedures in special situations.

Chapter six is devoted to complications during and after surgery. This portion of the text is particularly well done and is a very important review for anyone planning or practising third molar surgery.

The fracture of teeth and the displacement of root fragments into inaccessible places, the decision as to whether recovery should be considered and the various surgical approaches are covered with logic and understanding.

Antral complications, damage to soft tissue, haemorrhage, prolapse of the buccal fat pad, emphysema and nerve damage are clearly presented.

Appropriately the final chapter deals with the approach to third molar surgery in the medically compromised patient. This concise but thorough summary of the more significant medical contingencies one must be aware of and alert to, is a fitting conclusion to this fine text.

It is obvious to the reviewer that the authors of this interesting and informative edition are themselves experienced clinical Oral Surgeons. I would suggest that the practitioner of dentistry as well as the dental student would do well to have this book as a part of their academic library.

*This book was reviewed by
Dr. H. F. Biewald,
an oral surgeon in Ottawa, Ontario*

ANDERSON'S APPLIED DENTAL MATERIALS

John F. McCabe

Blackwell Scientific Publications
Boston, Mass. 178 pages.

This book has earned the reputation of providing a practically oriented text of compact dimensions for the undergraduate student and practicing dentist. The new edition which has been completely rewritten and condensed into about 170 pages has successfully retained these characteristics and the material is up to date. There are 29 chapters, each dealing with a separate subject or material. The book as the title suggests is quite short on theory and a few topics are either given inadequate coverage or are completely omitted. Correction of these defects would provide a more acceptable text to both practitioners and dental students. Each chapter starts with an introductory section which provides the reader with an overview of the material under discussion. A much appreciated feature is the inclusion of a discussion of the desirable properties of the material at the chapter's beginning, followed at the end by a brief discussion of how well current materials achieve these. One wishes the author had applied this format to all appropriate chapters rather than just a few. Insufficient space is devoted to the proper manipulation of materials, and to manipulative variables.

The first two chapters present the science of dental materials with the usual discussion of mechanical and physical properties. In an apparent attempt to make the subject as short and as palatable as possible, the author has simplified certain topics to the

point that they are inaccurate or misleading. The sections on bonding and biological properties are inadequately covered. Surprisingly little information is provided about the potential hazards of dental mercury. In contrast the sections on viscoelastic and rheological properties are extensively covered.

Chapters 3 through 13 present materials generally associated with laboratory procedures, including restorative materials such as cast metal restorations which are largely fabricated in the laboratory. The sections on gold foil, plastic deformation and work hardening of metals are woefully inadequate whereas the section on phase diagrams is extensive. Very little attention is paid to alloys which can be used as an alternative for the traditional high gold casting alloys. In view of the increasing popularity and successful track record of these alloys a separate chapter for them would be desirable. No mention is made of the recently introduced castable ceramics. The health hazards associated with nickel, chromium and beryllium are only lightly dealt with.

The remaining 16 chapters discuss those materials such as amalgam, restorative resins, impression materials, dental cements and denture lining materials which are generally used directly in the mouth. Any significant mention of resin sealants is glaringly absent. All of the chapters on polymeric materials are very well written, possibly reflecting the current author's background. The chapter on adhesive resin materials is excellent and is as up to date as is usually possible for a book. No mention is made of the cold slab technique for mixing zinc phosphate cement even though this technique has become popular in orthodontic practice.

Many deficiencies of the book appear to arise from the reduction of the subject matter to the point where the reader has inadequate information to understand the concepts. Expansion of the book by only 20 or 30 pages could well overcome this. A short list of references at the end of each chapter to support statements in the text, or to provide additional information for the more serious reader would be a valuable addition. With the appropriate revisions, this text could become one of the authoritative texts on dental materials for undergraduate students and practitioners with the added advantage of conciseness which is lacking in the current texts. In its present form the book makes a valuable addition to the bookshelf of any practicing dentist or dental student. We will look forward to an early appearance of a revised edition.

*This book was reviewed by
Dr. P.T. Williams, Head,
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The University of Manitoba*

GLICKMAN'S CLINICAL PERIODONTOLOGY SIXTH EDITION

F.A. Carranza, Jr.

*W.B. Saunders Co.,
Toronto, Ontario,
1984, 979 pages, \$72.60*

This textbook is designed for use by the general dental practitioner and the under-graduate dental student.

The format of the book remains basically unchanged from the previous edition, while an updating of the material has been completed. The book is divided into three sections with a very concise and informative historical background serving as an introduction.

The first section consists of five chapters and provides a detailed clinical and histological description of the periodontal tissues. The written text is

effectively supported with good quality photographs, diagrams and clinical photographs.

The second section of the textbook contains three parts made up of twenty-six chapters that give an in-depth description of inflammatory periodontal disease in terms of both the nature and etiology of periodontal disease. Photographs of clinical cases, radiographs and photomicrographs are numerous and well related to the text. The reader is provided with a very good description of inflammatory periodontal disease.

The third section contains seven parts and twenty-eight chapters. This section deals with the treatment of periodontal diseases and covers the entire range of therapeutic modalities including adjunctive and related subjects such as restorative and orthodontic procedures. The description of periodontal therapy is complete in most aspects, however, more discussion of root preparation and the maintenance phase of periodontal therapy would give the reader a better understanding of the importance of these components of therapy.

In summary, this textbook is generally well organized and presented. The material is current and each chapter contains a very extensive bibliography. The publication is very suitable to serve as a standard textbook and reference for both the undergraduate dental student and the general practitioner.

*This book was reviewed by
Lt. Col. D.J. Morrow,
Canadian Forces Dental Service,
CFB Borden, Ont.*

OROFACIAL PAINS: CLASSIFICATION DIAGNOSIS MANAGEMENT, 3rd ed.

Welden E. Bell

*Year Book Medical Publishers Inc.,
Chicago, 1985
420 pages*

The last decade has witnessed an increase in interest by health professions in the study and understanding of pain in general and orofacial pain in particular. *Orofacial Pains: Classification, Diagnosis, Management* by Welden E. Bell, Clinical Professor of Oral and Maxillofacial Surgery at Baylor College of Dentistry is one of the textbooks that attempts to explain and classify orofacial pain for the practicing dentist in a meaningful and practical way. Now in its third edition the textbook also attempts, in the words of the author, to update information which has been "rendered obsolete" by the rapid developments in the understanding of pain since the publication of the first two editions. Due to the complexity of the nature of the pain phenomenon and the types and number of entities that give rise to the symptoms of pain in the orofacial region, and the various philosophies of treatment, the textbook falls short of its goal. There is too little of too much. In fairness to the author, however, it is doubtful whether such a task is possible in a textbook of standard length.

The strength of the textbook lies in the number and diversity of the topics that are covered. To the author's credit, nearly every aspect of pain as a phenomenon and orofacial pain as a symptom is at least mentioned. There are, at times, instances when important areas are passed over quickly and others where, despite the textbook's recent publication, concepts are presented that have already changed. This stands as less of a criticism of the author than an expression of the sheer magnitude of his task. It also raises the question as to whether it is possible

for one individual to author a textbook on this subject any longer.

Typical of this is the chapter on "Pains of Dental Origin", which next to the common headache, represents the most common cause of orofacial pain and the most frequent type of pain encountered by the practicing dentist. While the scope of the chapter is broad, covering everything from the quality and pattern of dental pain to the causes of pain of pulpal and periodontal origin, each of the areas is covered so superficially that the reader has difficulty in appreciating the differences and significance of physiological pain of pulpal origin and pathological pain of pulpal origin, referred dental pain, patterns and mechanisms, and discriminatory tests for identifying dental pain of a reversible and irreversible nature relative to other types of pain that occur in the orofacial region.

Similar criticisms could be raised regarding most of the textbook's eighteen chapters which include sections on the psychophysical aspects of pain, specific painful disorders (dental, temporomandibular, musculoskeletal, vascular, visceral, neurological and psychogenic), pain examination and diagnosis, and pain management (which includes physiotherapy, psychotherapy, neurosurgery, medicinal therapy, relaxation therapy, and transcutaneous stimulation, to name but a few).

For the reader who is a novice in the study of orofacial pain the textbook will represent a perspective in the diversity and complexity of the subject. For the reader who is a student in this area, the obvious shortcomings will be readily apparent.

*This book was reviewed by
Dr. C.D. Torneck,
Associate Professor,
Faculty of Dentistry,
University of Toronto.*

COLOR ATLAS OF ORAL PATHOLOGY

K.W. Lee

*Lea & Fabiger — Philadelphia 1985
\$52.75, 148 pgs*

This 148 page atlas contains 476 color illustrations with accompanying captions. The majority of the illustrations are high quality photomicrographs. A few good clinical photographs and excellent radiographs are also presented.

It is always difficult for a pathologist to decide how much histopathology to "inflict on" his or her audience or readers. Most pathologists and clinicians agree, however, that some exposure to histopathology is inextricably linked to learning pathology. Due to such philosophical quandries, not to mention financial constraints, oral pathology textbooks generally have less than adequate numbers of illustrations and these are almost invariably in black and white.

This atlas should serve as a useful complement to standard oral pathology texts and provide a relatively efficient means of reviewing an undergraduate oral pathology course before exams.

Dr. Lee's book, weighing in at \$52.75, is highly recommended for all those engaged in the struggle to learn oral pathology. It seems well tailored for its intended audience of undergraduate and post-graduate dental students and even "trainee oral pathologists should derive some benefit from it."

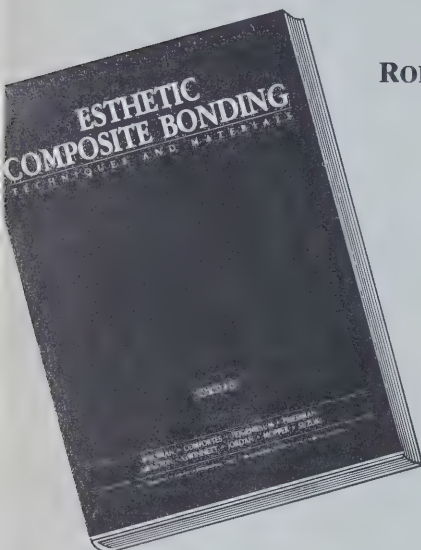
*This book was reviewed by
John G.L. Lovas, BSc, DDS, MSc, MRCDIC
Division of Oral Pathology
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Specialty Features

FINANCIAL SUPPORT FOR DENTAL TREATMENT FOR PATIENTS WITH CANCER IN CANADA

J.H.P. Main, BDS, PhD, FDSRCSE, FRCPath., FRCD(C)

Cancer is an important disease in dental practice and patients with the condition in one or other of its many forms may come to the attention of dentists in different ways. Perhaps the most common of those arises when the dentist or the patient suspects that a malignant lesion may have arisen in the mouth. Such suspicion may arise in the presence of a lump, keratotic patch, erythematous patch or chronic ulcer, all ways in which primary cancer may present in the mouth. Metastatic tumours may also spread to the mouth as lumps, ulcers or radiolucencies in the jawbones. Leukaemias may present initially in the mouth in the form of periodontal infection, gingival hyperplasia or as spontaneous petechiae formation.^{1,2} In any of these circumstances, it is the responsibility of the dentist to see that appropriate investigations are performed to confirm or deny the putative diagnosis which usually necessitates biopsy and often blood investigations.

Then again many patients with diagnosed cancer require dental treatment as a result of the disease itself or because of the effects of cancer treatment. Current cancer treatment modalities include surgery, radiotherapy and chemotherapy, alone or in combination, and all of these may directly or indirectly necessitate dental care.^{3,4}

To a greater extent than other cancer patients, patients with malignancies in or around the mouth almost always require dental care as part of their overall management and this should be planned by a team that includes a general dentist with



experience in oncology or an oral pathologist. Potential complications and future rehabilitation requirements should be taken into consideration. In all cases of oral and circum-oral cancer, any active mouth infection needs first to be eliminated, the mouth and teeth have to be thoroughly cleaned and any untreated caries should be removed and restored by either permanent or temporary restorations, or the tooth or teeth extracted. Where therapeutic radiation is to be used with fields that include the salivary glands, the effects of subsequent xerostomia must be weighed and decisions taken on whether to extract all natural teeth, as was the invariable practice in the past, or to retain some or all with all the implications for subsequent intensive dental care and the increased risk

of osteo-radio-necrosis.^{5,6,7} When teeth are retained, continuing intensive supervision by a dental oncologist is necessary for a year or so at least, and for longer in many patients.^{8,9}

In mouth cancer patients whose treatment is to be surgical, the initial treatment is usually fairly straightforward and designed to eliminate local infection or other local complicating factors. After the surgery, careful dental follow up is required as difficulties in oral hygiene may result in the development of caries or periodontal disease. Special maxillo-facial prosthodontic appliances are usually required to enable these patients to continue to eat and speak satisfactorily and in some cases it is desirable for these appliances to be inserted at the time of surgery.¹

Cancer chemotherapy can produce oral effects and these may occur no matter where in the body the primary lesion is. Oral effects of anti-neoplastic drugs arise due both to direct effects on the oral mucosa, the epithelium of which has a high mitotic rate and is therefore affected directly by most anti-mitotic drugs, and to secondary effects resulting from bone marrow depression resulting in leukopenia and sometimes significant thrombocytopenia also.^{10,11} The oral lesions are mucosal inflammations and ulcerations with secondary opportunistic infection supervening.

Another category of malignant disease that causes oral disease necessitating dental care are the leukaemias in which infectious, haemorrhagic, ulcerative and hyperplastic conditions commonly occur in the

mouth due to the disease itself and side effects of the treatment, commonly chemotherapy, may also produce problems necessitating dental treatment.^{12,13,14}

Yet another way in which cancer comes to the attention of dentists is when oral pathologists providing a diagnostic biopsy service encounter cancer in specimens submitted to them for examination and diagnosis.

This brief review of the oral effects of malignant disease and its various forms of investigation and treatment illustrates the extensive need and necessary involvement of the dental profession in these patients.

Such dental care has costs and as it was known that there was considerable variation between Canadian provinces in the coverage of these costs by the provincial health insurance plans, a survey was conducted to establish the extent of the variations.

Methods

A questionnaire was devised that requested information concerning provision by each Provincial Health Insurance Plan of:-

- Financial coverage for investigation of suspected head and neck cancer by dentists.
- Financial coverage for dental treatment of diagnosed cases of head and neck cancer.
- Financial coverage for dental treatment for patients with cancer arising elsewhere in the body.

These three categories were further subdivided in two, with information being requested on coverage in private dental offices and in hospital dental departments.

In an attempt to gain reasonably full information on this subject, the questionnaire was sent to all provincial dental registrars, all deans of Canadian dental schools, all directors of provincial government dental divisions, all dental school heads of Departments of Oral and Maxillo-Facial Surgery and of Oral Pathology, and to a number of individuals known to be practising in dental oncology. No questionnaires were sent to individuals in Ontario as the writer was familiar with the extent of the health insurance plan coverage in that province.

Results

Twenty-three completed questionnaires were returned; most respondents also providing covering letters to explain more fully their provincial situation.

No responses were obtained from Newfoundland and New Brunswick, so neither of these provinces are included in the Tables of results.

The results are tabulated in Tables 1 to 6.

In private dental offices investigations of suspected head and neck cancer by dentists

are covered only under special circumstances in Quebec and Saskatchewan. In Alberta all patients over the age of 65 and others referred by a physician are covered. Only in Ontario is there coverage for reports by oral pathologists on biopsies done in private dental offices, and this is done indirectly through the Ontario Cancer Treatment and Research Foundation. (Table I).

Dental treatment in private offices for

patients with head and neck cancer is covered in Saskatchewan for patients referred by a physician with the Cancer Control Foundation and in Alberta under the direction of the Director of Dental Oncology. In Nova Scotia maxillo-facial prosthodontics is covered and in British Columbia Oral Surgery on authorization from the Cancer Control Agency (Table III). All responding provinces provide maxillo-facial prosthodontics.

TABLE I

Financial coverage by provincial health insurance plans for investigation of suspected cases of cancer by dentists in private dental offices.

	PEI	NS	PQ	Ont	Man	Sask	Al	BC
Clinical Examination			X ¹			X ²	X ³	
Radiographs			X ¹			X ²	X ³	
Biopsy (Surgical Procedure)			X ¹			X ²	X ³	
Consultations			X ¹			X ²	X ³	
Biopsy Report by Oral Pathologist				X				

¹ Only if performed by an oral surgeon who subsequently operates on the lesion.

² Only if referred by a physician with the Saskatchewan Cancer Foundation.

³ For all patients over 65 years and for others if referred by a physician.

TABLE II

Financial coverage by provincial health insurance plans for investigation of suspected cases of cancer by dentists in hospital dental departments.

	PEI	NS	PQ	Ont	Man	Sask	Al	BC
Clinical Examination			X			X ¹	X ²	
Radiographs			X		X	X ¹	X ²	
Biopsy (Surgical Procedure)		X	X	X	X	X ¹	X ²	X ³
Consultations			X	X	X	X ¹	X ²	
Biopsy Report by Oral Pathologist				X				

¹ If referred by Saskatchewan Cancer Foundation.

² For all patients over 65 years and for others if referred by a physician.

³ For in patients only.

TABLE III

Financial coverage by provincial health insurance plans for dental treatment of diagnosed cases of head and neck cancer in private dental offices.

	PEI	NS	PQ	Ont	Man	Sask ¹	Al ²	BC ³
Clinical Examination						X	X	
Radiographs						X	X	
Biopsy						X	X	
Consultations						X	X	
Scalings							X	
Fluoride Treatments						X	X	
Periodontal Treatments						X	X	
Fillings							X	
Crown and Bridge							X	
Oral Surgery						X	X	X
Prosthodontics						X	X	
Maxillo-Facial Prosthodontics		X				X	X	

¹ Only if referred by a physician with the Saskatchewan Cancer Foundation.

² Under direction of Director of Dental Oncology.

³ On authorization from Cancer Control Agency.

TABLE IV

Financial coverage by provincial health insurance plans for dental treatment of diagnosed cases of head and neck cancer in hospital dental departments.

	PEI	NS	PQ	Ont	Man	Sask ⁴	Al	BC ⁵
Clinical Examination			X			X	X	X
Radiographs			X		X	X	X	X
Biopsy			X	X	X	X	X	X
Consultations			X	X	X	X	X	X
Scalings						X	X	X
Fluoride Treatments						X	X	X
Periodontal Treatment						X	X	X
Fillings						X	X	X
Crown and Bridge							X	X
Oral Surgery			X	X	X	X	X	X
Prosthodontics						X	X	X
Maxillo-Facial Prosthodontics		X	X ¹	X ²	X ³	X	X	X

¹ Only at Notre Dame Hospital, Montreal.
² Only at Princess Margaret Hospital, Toronto.
³ Only at Special Prosthodontic Clinic in Health Sciences Centre, Winnipeg.
⁴ On referral by physician from Saskatchewan Cancer Foundation.
⁵ Only at Dental Department of the Cancer Control Agency of BC or, for geographic reasons, in private offices under supervision from CCA.

TABLE V

Financial coverage by provincial health insurance plans for dental treatment of diagnosed cases of cancer in sites other than in the head and neck in private dental offices.

	PEI	NS	PQ	Ont	Man	Sask ¹	Al	BC
Clinical Examination						X		
Radiographs						X		
Biopsy						X		
Consultations						X		
Scalings						X		
Fluoride Treatments								
Periodontal Treatment						X		
Fillings								
Crown and Bridge								
Oral Surgery								
Prosthodontics								

¹ Only if referred by a physician with the Saskatchewan Cancer Foundation.

TABLE VI

Financial coverage by provincial health insurance plans for dental treatment of diagnosed cases of cancer in sites other than the head and neck in hospital dental departments.

	PEI	NS	PQ	Ont	Man	Sask	Al	BC
Clinical Examination			X			X	X	
Radiographs						X	X	
Biopsy				X		X	X	
Consultations			X	X	X	X	X	
Scalings							X	
Fluoride Treatments							X	
Periodontal Treatment						X		
Fillings								
Crown and Bridge				X	X		X	
Oral Surgery								
Prosthodontics								

dontic treatment in hospitals although in Quebec, Ontario, Manitoba and British Columbia, this treatment is only available at a single centre. Table 4 also shows that in hospital dental departments, full dental treatment for head and neck cancer patients is provided in Saskatchewan — on a physicians' referral — in Alberta and in British Columbia. In Quebec, Ontario and Manitoba, oral surgery and biopsies are covered, with radiographs in Quebec and Manitoba, but none of these provinces cover any restorative, preventive or periodontal treatment. Nova Scotia provides only maxillofacial prosthodontics.

Patients with cancer in sites other than around the mouth receive covered dental treatment in private offices only in Saskatchewan — again on referral. Ontario and Manitoba cover oral surgery and consultations and Quebec consultations and examinations, but only in hospital dental departments. In Alberta full coverage is provided.

The necessity of providing dental care for cancer patients while no or minimal coverage for it has been provided in the provincial health insurance plans, has led two cancer treatment centres in two provinces, British Columbia and Ontario, to employ dentists on a salaried basis to provide the treatment.

Discussion

The need for dental care in cancer patients is the result of the disease itself or of the treatment given for the disease. The consequences of not providing this care can range from serious complications such as osteo-radio-necrosis or malnutrition through major functional disabilities in speech and mastication to, at the other extreme, social embarrassment from altered and perhaps unsightly facial appearance.

The enormous variations that exist across the country in financial provision for such treatment are immediately apparent from the tabulated survey results. Only in Alberta and Saskatchewan is there adequate financial coverage and in the other provinces surveyed, the coverage available is either incomplete or non-existent. In practice this means that patients must pay for the care privately, or through a dental insurance plan if one is held and covers such care, or the treatment is provided on a charitable basis by the dentists involved. The dental costs can fall particularly heavily on patients who have had to lose time from work because of the disease and its treatment.

These large provincial differences in coverage are contrary to the intentions of the Canadian Health Insurance Acts by means of which universal health care was to be made available to everyone. In very

large measure this has been achieved but it has not extended to the necessary dental treatment aspects for patients with cancer, with the honourable exceptions of Alberta and Saskatchewan.

The lack of financial coverage for this specialized form of dental care must not only have caused hardship and considerable amounts of preventable disease and suffering for the patients concerned, but it has also made it difficult for dental oncology centres of excellence to be developed to provide the care.

In the opinion of the writer, attempts should be made by all dental organizations to correct the present inadequacies in the provision of this treatment and to bring the other parts of Canada up to the standards pertaining in Alberta and Saskatchewan.

Acknowledgements

Dr. John Hardie of Ottawa Civic Hospital first suggested that this survey should be done and a shortened report of it was presented during the Symposium on Oral Cancer held at the Annual Meeting of the Canadian Dental Association in October, 1985.

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Dr. Main is Professor and Head of the Department of Oral Pathology, Faculty of Dentistry, and Head of the Department of Dentistry, Sunnybrook Medical Centre, University of Toronto.

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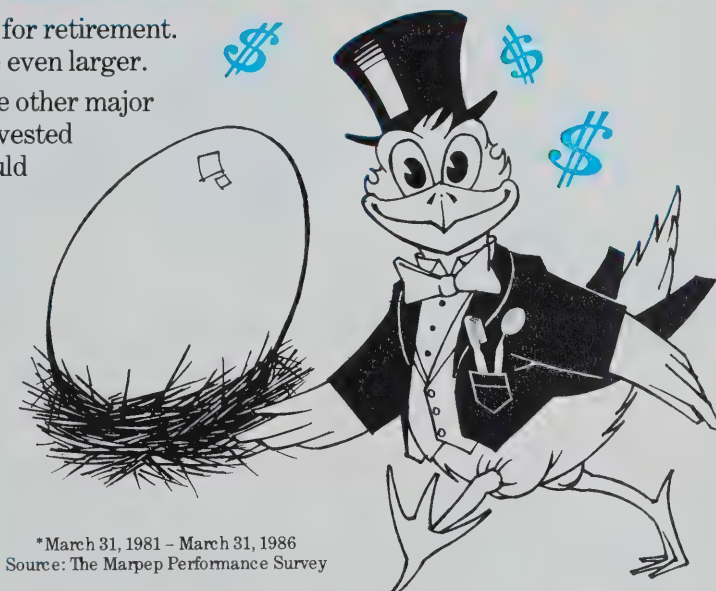
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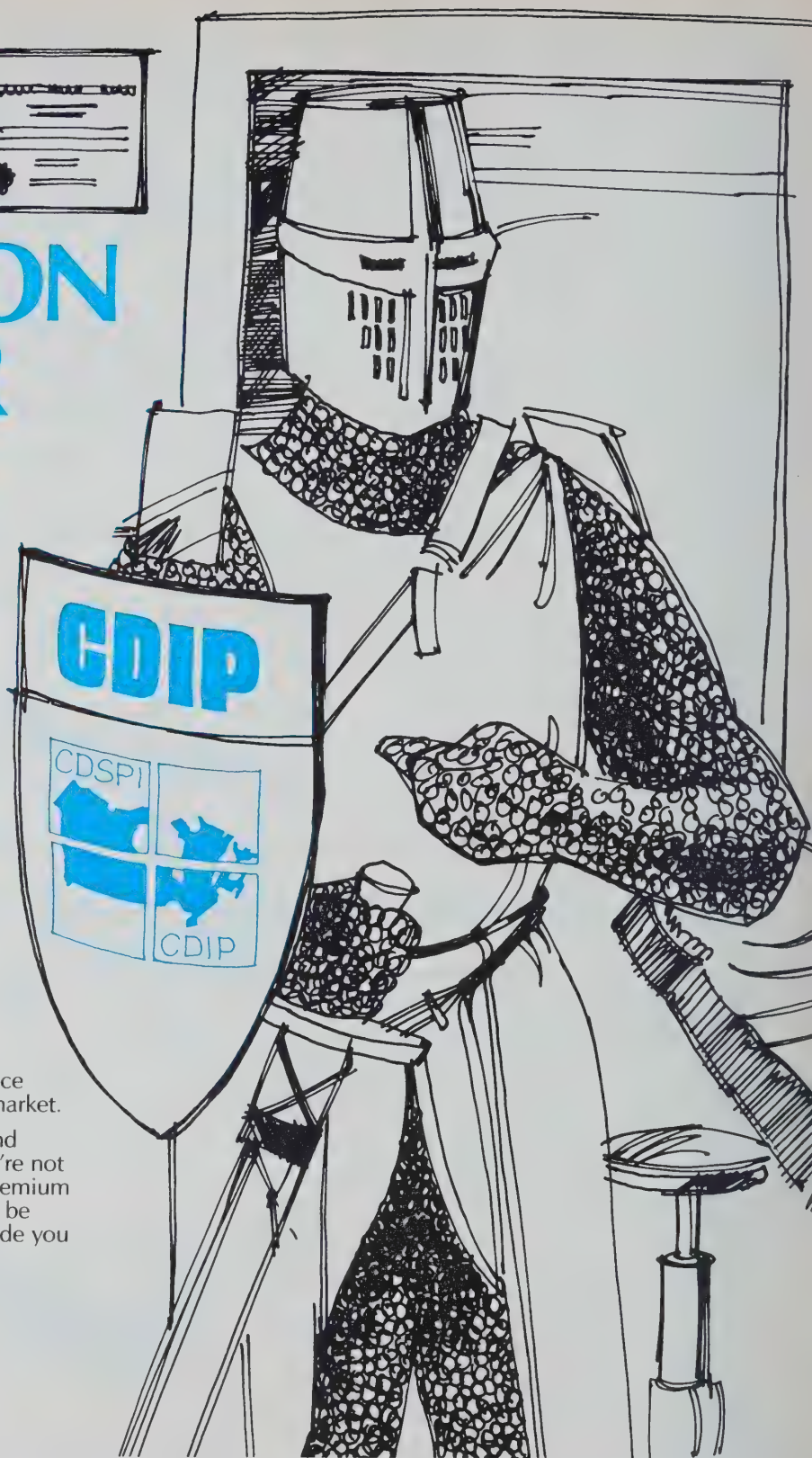
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AN EVALUATION OF A DENTAL CARE PROGRAM FOR INDIAN CHILDREN IN THE COMMUNITY OF SANDY LAKE. *Sioux Lookout Zone, 1973-1983*

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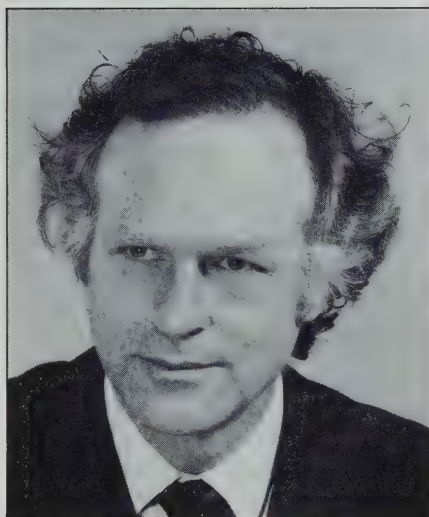
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ABSTRACT

This study reports on the level of caries over a 10-year period in the Indian community of Sandy Lake in the Sioux Lookout Zone. Aspects of the present dental service are examined and suggestions are made for the implementation of improved preventive services.

In 1969, the University of Toronto and The Hospital for Sick Children, Toronto, in cooperation with the Department of Health and Welfare, commenced a program for the delivery of health care to the Indian people resident in the Sioux Lookout Zone of Northwestern Ontario.¹ As part of this program, dentists equipped with portable dental equipment, are flown to remote communities to provide basic dental services.²

Caries prevalence studies in the Sioux Lookout Zone have previously been reported. In 1973, Titley³ recorded the prevalence for the entire zone, whereas the study of Hargreaves and Titley,⁴ completed in 1970, was a pilot study incorporating a small segment of the population. Data for the present study were derived from the population of Sandy Lake, which is the largest community in the Sioux Lookout Zone, and compared with those obtained in 1973 from both Sandy Lake and all the communities within the zone. The purpose of these comparisons was to determine if there had been any improvement in the dental health of the population of Sandy Lake since the implementation of the dental program.



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A further purpose of the present study was to determine the prevalence of 'nursing bottle caries' in children aged four and five years. Nursing bottle caries is characterized by carious destruction of the maxillary deciduous incisors followed by the deciduous first molar teeth.⁵ Studies have shown that almost all children affected by nursing bottle caries have imbibed milk formula, liquids containing refined sugars, or fruit juices from bottles, when going to sleep.⁵⁻⁸ This form of caries is associated with prolonged bottle feeding beyond the age of 12 months.⁵ White⁹ concluded that the caries pattern results from an interaction between excessive use of sugars, oral microorganisms, reduced salivary flow during sleep and maternal failure to wean

the child from the bottle. Recently, Derkson and Ponti¹⁰ noted that the parents of children with nursing bottle caries tended to be younger and had less formal education compared to parents of children who were not affected.

Materials and Methods

The Sioux Lookout Zone has a population of 12,000 Cree and Ojibway Indians, of which 9,500 live in 25 remote communities. The Zone is located in the northwestern corner of Ontario, covering an area of 385,000 square kilometres.¹ The majority of the communities are accessible only by air. The remaining 2,500 inhabitants live in settlements along the railway and highway to the south and around the predominantly non-Indian towns of Sioux Lookout, Pickle Lake and Red Lake.

Titley and Mayhall¹¹ showed that caries prevalence was similar in each community throughout the zone, regardless of population size or whether the community was serviced by a nursing station with its resident health care personnel. As a result, the largest community within the zone — Sandy Lake — was chosen for the present study. The community was ideal, both because of its relatively large size and the cooperation of its residents. The population of Sandy Lake in 1981 was 1461, according to the Sioux Lookout Zone Hospital statistics. Access is limited to year-round air travel through an all-weather airstrip.

After explaining the purpose of the study to the Band Council and Chief, approval was given for the examination of the children.

The school principal also consented to allow the children to leave the classrooms to be examined. The dental clinic in Sandy Lake is established in the reserve school. The number of children examined in the present study totalled 301, out of the 446 children enrolled in the school. The children were examined during school hours, using artificial light in both portable and conventional dental chairs. These examinations were undertaken during two-week periods in March and June 1983.

Dental examinations were carried out without cleaning the teeth and, where necessary, the teeth were dried with an air syringe. Front surface mouth mirrors and sickle-shaped explorers were used to detect caries. Third permanent molars were not included in this survey, so that recordings were made on 28 permanent teeth and 20 primary teeth. Radiographs were not taken, in accordance with the guidelines established by the World Health Organization.¹² The criteria selected for caries detection closely followed those of Radike,¹³ in

which pits and fissures were considered carious if the explorer resisted removal after insertion with moderate to firm pressure. In addition, the guidelines published by WHO¹² in 1977 for the diagnosis of caries in teeth were adhered to.

Caries experience of the permanent (DMF) and deciduous teeth (def) was calculated at the end of the survey. Caries prevalence for deciduous teeth was determined for children aged four to eight years and for deciduous maxillary incisor teeth in children aged four and five years. One-tailed t-tests were conducted when comparing the different data collected. If the F ratio of variance ($O^2 = O_2^2 = o_2^2$) assumption could not be made and the t statistic could not be utilized directly, a pseudo t statistic was then computed, using a formula devised by Wyatt and Bridges.¹⁴

Results

From Table I, it can be seen that there is a gradual increase in DMF from ages five to 13 years, then it stays relatively

unchanged, increasing slightly by 16 years. The mean number of decayed teeth follows a similar pattern in the early years, rising from 0.82 at age five to 6.94 by age 12. After age 12 there is a gradual decrease in the number of decayed teeth, which represents approximately 50 per cent of the DMF total. The number of mean filled teeth shows that very few teeth are being restored in younger Indian children and that it does not increase appreciably until age 12 years; it then rises gradually until age 16 where it represents about 50 per cent of the DMF total. The total number of caries-free teeth ranges from 48.7 per cent of the total number of teeth at risk to a high of 72 per cent at age nine. From age 10 there is a tendency for the percentage of caries-free teeth to decrease, although slight rises were recorded at ages 11 and 14 (Table I, Fig. 1).

Since the occlusal surface morphology of first permanent molars and their eruption at an early age places them in a high caries risk category, the DMF index for these teeth was recorded separately (Table II). The results showed that the DMF index for first permanent molars increases directly as the number of teeth at risk increases, until 93 per cent at age 16 are filled, missing (presumed extracted), or decayed. The results further indicated that in children aged five to 16 years, very few molar teeth are missing due to extraction and that from age 14 onwards, the mean number of restored first permanent molar teeth greatly exceeds the mean number of decayed teeth.

When the mean DMF for children aged six to 17 years is compared for the Sioux Look-out Zone in 1973 and Sandy Lake in 1973 and 10 years later — in 1983, it can be seen that there are no statistically significant differences (Table III). There were no statistically significant differences between the Zone in 1973 and Sandy Lake in 1973, and 10 years later there were no statistically significant differences in the mean DMF when comparing Sandy Lake in 1983 with the Zone in 1973 or Sandy Lake in 1973. An examination of the mean filled portion of the DMF index showed that from ages eight to 15 years, there were statistically significant differences in the proportion of filled teeth when comparing Sandy Lake with the Zone in 1973, with the population of Sandy Lake having fewer restored decayed teeth (Table IV). Comparison of the Sandy Lake data in 1983 with those of the Zone in 1973 shows that there is a statistically significant difference in the proportion of filled teeth in the six to 13-year-old age group, with children of Sandy Lake again receiving less restorative care 10 years later. When comparing the data for Sandy Lake in 1983 with those from Sandy Lake in 1973, it can be seen that, with the excep-

TABLE I

DMF, Total teeth at risk, mean decayed, mean filled and mean caries free teeth, for all age groups in Sandy Lake (1985)

Age	N	Teeth at Risk	DMF ± S.D.	Mean Decayed ± S.D.	Mean Filled ± S.D.	Caries Free ± S.D.	Per Cent Caries Free
5	28	1.89±2.65	0.93±1.71	0.82±1.15	0.10±0.56	0.92±1.65	48.70
6	35	4.31±2.96	1.91±2.20	1.88±2.13	0.02±0.16	2.31±2.17	53.60
7	38	8.10±2.52	2.94±2.92	2.70±2.28	0.21±0.47	5.05±2.51	62.30
8	29	11.2±2.40	3.96±4.38	3.27±3.14	0.62±0.97	7.31±2.15	65.30
9	33	14.5±4.13	3.72±3.54	2.27±2.19	0.87±1.02	10.5±3.93	72.40
10	16	17.9±5.27	5.55±4.23	4.81±2.71	0.31±0.79	12.1±4.38	67.60
11	13	25.1±3.13	7.45±4.84	6.68±3.14	0.61±1.32	17.5±3.15	69.70
12	21	25.1±3.61	9.02±8.03	6.94±5.76	1.66±1.59	15.6±4.47	62.20
13	24	27.1±2.29	9.73±9.35	5.99±5.56	2.95±2.54	16.7±5.13	61.60
14	25	27.7±0.54	8.60±8.14	4.64±4.48	3.52±2.74	18.3±4.26	66.10
15	16	27.5±1.03	9.35±9.30	3.99±4.74	4.43±3.03	17.0±6.02	61.80
16	8	27.3±0.91	10.9±11.2	4.99±5.83	4.25±2.96	15.1±4.48	53.30

TABLE II

DMF, For first permanent molars, total teeth at risk, mean decayed and mean filled, for all age groups, Sandy Lake (1983)

Age	N	Teeth at Risk	DMF ± SEM	Mean Decayed ± SEM	Mean Filled ± SEM
5	28	1.39±0.04	0.96±0.36	0.82±0.22	0.14±0.14
6	35	2.68±0.29	1.99±0.41	1.88±0.34	0.11±0.07
7	38	3.92±0.04	3.00±0.50	2.67±0.37	0.31±0.11
8	29	4.00±0.00	3.15±0.65	2.03±0.52	0.96±0.26
9	33	3.93±0.06	3.23±0.58	2.11±0.32	1.03±0.21
10	16	4.00±0.00	3.55±0.88	2.62±0.43	0.50±0.27
11	13	4.00±0.00	2.97±0.91	2.37±0.50	0.53±0.33
12	21	3.95±0.05	3.79±0.80	1.70±0.38	1.71±0.28
13	24	4.00±0.00	3.70±0.77	1.04±0.31	2.16±0.27
14	25	4.00±0.00	3.64±0.71	0.84±0.27	2.48±0.29
15	16	4.00±0.00	3.55±0.83	0.56±0.32	2.43±0.33
16	8	4.00±0.00	3.72±1.60	0.74±0.54	2.12±0.88

tion of children aged 12-13 years, there has been no statistically significant change in the proportion of filled teeth.

The def indices for deciduous teeth for children aged four to eight years are shown in Table V. These indices were compared to those recorded for children in the Sioux Lookout Zone in 1973, and it can be seen that there has been no statistically significant change in caries prevalence in deciduous teeth over a 10-year period. The findings for the mean number of teeth at risk, def index and the mean percentages of decayed and filled teeth are shown in Table VI. It can be seen that in children at Sandy Lake, aged four to eight years, more than 70 per cent of deciduous teeth are decayed and only in the seven- and eight-year old children are more than 10 per cent of these teeth restored.

The contribution of maxillary deciduous incisor teeth to the def index is shown in Table VII. At age four, 92 per cent of deciduous central incisors are decayed, while in the five-year-old group, 88 per cent of these teeth are affected by caries. At age four years, 67.5 per cent of maxillary deciduous lateral incisors are affected, rising to 86.5 per cent at age five. The contribution of deciduous central and lateral incisor maxillary teeth to the overall def index is 25.7 per cent at age four and 25.6 per cent at age five.

Discussion

The finding that the DMF index increases gradually from age five to 13 years is to be expected. The permanent teeth are actively erupting into the oral cavity during this time and thus become susceptible to dental caries. What is disappointing, however, is the magnitude of the increase in the DMF index, which rises from 0.93 at age five to 9.73 by age 13. This is also reflected in the fact that the total mean number of caries-free teeth never rises to much above 70 per cent for all teeth at risk. This appears to decrease to the lower to mid-60 per cent level after age 13.

When the component parts of the DMF index are determined, it can be seen that the mean of the decayed teeth (D) makes up a larger portion of the index at all ages with the exception of age 15 years. The higher numbers of restored teeth in the older children is probably a reflection that these children are easier to manage in the dental environment and that they may be more willing to seek treatment as they become more aware of the contribution of teeth to general appearance.

The increase in the DMF index for first permanent molar teeth corresponds with the eruption of these teeth into the oral cavity in that there is little or no increase after age

seven. It would appear few of these teeth are restored until age 12, when more than 50 per cent are recorded as having been restored. Although it would appear that very few first permanent molars are being extracted due to caries, the low proportion of restored teeth in the younger age group is disappointing. These data underscore, however, that the first permanent molar tooth continues to be, by virtue of its occlusal morphology and maxillary lingual and mandibular buccal pits, highly susceptible to carious attack.¹⁵⁻¹⁷ There is, therefore, an excellent case to be made for the routine use of fissure sealants on all recently erupted first permanent molars in children resident in Sandy Lake or any other of the communities in the Sioux Lookout Zone.¹⁸⁻²¹ Since the application of fissure sealants does not involve the use of a local anesthetic agent, management of the apprehensive child would be easier for the dentist and may provide a more acceptable introduction for Indian children to the dental environment.

The finding that there has been no statisti-

cally significant change in DMF rates between those figures recorded for both Sandy Lake and the Zone in 1973 and for Sandy Lake in 1983, is worthy of comment. For any dental delivery program to be successful, there has to be a viable preventive program accompanying restorative services. Although regular fluoride brushings are a part of the program, there appears to be little evidence that dietary habits have changed, with the population still consuming vast amounts of fermentable carbohydrates.³ It is unlikely, therefore, that DMF rates will decline in the foreseeable future, so that the bulk of the dental program will continue to be directed towards the repair of cariously affected teeth, with its concomitant reliance on dental manpower.

There is some evidence to suggest that there has been some improvement in restorative services to the children of Sandy Lake from 1973 to 1983, particularly in children over 12 years of age. In fact, children over the age of 14 years are receiving restorative care equivalent to that received by children in the zone in 1973. It is

TABLE III

DMF for the Zone 1973 and Sandy Lake 1973 and 1983 and their significance

1973 ZONE		1973 SANDY LAKE		1983 SANDY LAKE		Zone 1973 Sandy Lake 1973	Zone 1973 Sandy Lake 1983	Sandy Lake 1973 Sandy Lake 1983
AGE	N	Mean DMF ± S.D.	N	Mean DMF ± S.D.	N	Mean DMF ± S.D.		
6-7	259	2.09±0.20	52	2.21±0.17	73	2.44±2.70	NS	NS
8-9	261	3.79±0.11	41	4.00±0.26	62	3.81±3.98	NS	NS
10-11	240	5.80±0.01	46	5.45±0.44	29	6.41±4.68	NS	NS
12-13	189	8.90±0.05	41	8.19±0.61	45	9.41±8.87	NS	NS
14-15	144	11.10±0.46	30	11.96±1.14	41	8.97±8.66	NS	NS
16-17	118	10.90±0.49	22	12.54±0.85	10	10.80±10.50	NS	NS

NS = Not significant at the 1 per cent level.

TABLE IV

Mean filled teeth for the Zone 1973 and Sandy Lake 1973 and 1983 and their significance

1973 ZONE		1973 SANDY LAKE		1983 SANDY LAKE		Zone 1973 Sandy Lake 1973	Zone 1973 Sandy Lake 1983	Sandy Lake 1973 Sandy Lake 1983
AGE	N	Mean Filled ± S.D.	N	Mean Filled ± S.D.	N	Mean Filled ± S.D.		
6-7	259	0.29±0.12	52	0.25±0.06	73	0.12±0.37	NS	S
8-9	261	1.58±0.04	41	0.51±0.15	62	0.75±1.00	S	S
10-11	240	2.66±0.01	46	0.82±0.18	29	0.44±1.05	S	S
12-13	189	3.83±0.10	41	1.34±0.25	45	2.35±2.22	S	S
14-15	144	4.60±0.19	30	3.30±0.70	41	3.87±2.85	S	NS
16-17	118	4.77±0.23	22	4.59±0.87	10	4.50±3.13	NS	NS

N.S. = not significant at the 1 per cent level.

S = significant at the 1 per cent level.

depressing to note, however, that there has been no statistically significant change in the amount of restorative care received by children in the six-11 age group. Further comment will be made on these findings.

The high carious involvement of the deciduous maxillary incisors at ages four and five years, which contribute 25 percent to the total def, may be attributed to diet, and in particular, to nursing bottles. It is still common to see Indian children with nursing bottles containing sugary liquids. Winter et al.²² showed that there was a direct relationship between the prevalence of rampant maxillary incisor caries and prolonged bottle feeding plus sweetened comforters. Poulson and Rolla²³ reported that there is a relatively high prevalence of caries in deciduous central incisors in children, which they attributed partially to the fact that the incisive papilla is situated close to the mesiolingual aspect of these teeth in this age group. The papilla supposedly gives rise to an increased accumulation of plaque. Since the deciduous maxillary incisors in the Sandy Lake population appear to be equally cariously involved, it would seem the factors cited by Poulson and Rolla²³ may not be involved in this population. Rosenstein⁷ notes that children who have had nursing bottle caries invariably become habitual consumers of carbohydrate-containing snack foods. The unalterable fact also remains that the teeth of children in the deciduous and early mixed dentitions in Sandy Lake receive very little restorative care.

Ryan and Grainger²⁴ have recently

reported that children residing in the Province of Ontario showed reductions in DMF and def indices over a 10 year period. Heloe and Haugejordan²⁵ have reported that there has been an overall downward trend in caries activity in many of the industrialized countries. Their data also indicate that at the same time, caries activity is increasing in the developing countries. They believe there are two reasons for these trends: firstly, that fluoride in industrialized countries is having a great effect on caries reduction and secondly, that in developing countries there is a relationship between the increased frequency of ingestion of refined carbohydrate-containing products and the increase in caries activity.

It is thus apparent that the high prevalence of caries recorded in Indian children resident in Sandy Lake presents a segment of industrialized Ontario that is more representative of a developing nation. The average five-year-old child in Ontario in 1982 had a mean def of 1.81, whereas a five-year-old child in Sandy Lake recorded a mean def of 12.4. Similarly, the mean DMF recorded for a 13-year-old Ontario child was 3.24, whereas that for a child of the same age in Sandy Lake was 9.73. Thus, even after 10 years of dental care, Sandy Lake children show a far higher caries prevalence than their southern counterparts.

It becomes apparent from the foregoing that an evaluation must be made of the dental program in the Sioux Lookout Zone. Dental programs are costly, especially when they are based almost exclusively on restorative treatment.²⁶ Holloway²⁶

hypothesized that restorative dentistry is more palliative than remedial, and showed that DMF did not decrease unless restoration was coupled with fluoridation. Dental manpower has been a problem since the inception of the program in 1969.³ It has been difficult to recruit dentists to work in remote areas, particularly since jobs were formerly readily available in urban areas. Three factors have helped to change this: the over-supply of dental manpower has made more graduates available for resident dentist positions in the Zone. This, coupled with realistic and attractive salaries has ensured that young, high-quality graduates seek these positions. The third factor is that the Ontario Dental Association has made a commitment to provide dentists and services to outreach communities that require dental services and as a result have committed themselves to service in the Sioux Lookout Zone. Thus, for the first time in over 10 years, there is sufficient manpower to provide adequate service.

Service, however, will continue to be provided by resident dentists who rarely stay for more than two years, interns from hospitals in Toronto and London, Ontario, and short-term dentists provided by the Ontario Dental Association. This introduces the problem of lack of continuity of dentists assigned to an individual community. Sandy Lake may, for example, be visited by as many as six to eight different dentists over a one-year period. It is difficult for the dentist and also the patient, to build a rapport with each other, especially if they are only staying for a two or three week period. With the large number of dentists arriving in a community, it becomes difficult for them to communicate the same information about preventive dentistry. One can only speculate how many different ways the people have been shown to brush and floss their teeth. If there is no continuity between what the dentists say and do, the community as a whole may become skeptical of what dentistry has to offer them.

Lack of continuity of dentists may also lead to lack of continuity in treatment objectives and target groups. One dentist may complete a quadrant of treatment for a particular child during his or her visit, and that child may be missed during subsequent visits by a different dentist. Alternatively, because of the short period of a dental visit, the dentist may feel compelled to accomplish as much as possible during a short time and treat only the more manageable children. It may be speculated that this is one of the reasons for the low level of dental care experienced by the younger children in the community.

A serious and difficult problem has been the education of parents in the benefits of the dental health of their children. Since the

TABLE V

DEF for the Zone in 1973 and Sandy Lake in 1983

AGE	1973 Zone		1983 Sandy Lake		Significance
	N	DEF $\pm$ SD	N	DEF $\pm$ SD	
4	117	10.60 $\pm$ 0.02	13	12.40 $\pm$ 8.83	NS
5	137	12.00 $\pm$ 0.02	28	13.20 $\pm$ 8.94	NS
6	128	8.49 $\pm$ 0.03	35	7.66 $\pm$ 7.34	NS
7	128	8.91 $\pm$ 0.01	38	8.51 $\pm$ 7.70	NS
8	145	9.03 $\pm$ 0.02	29	8.15 $\pm$ 7.01	NS

TABLE VI

Analysis of the DEF Index for Sandy Lake, 1983

AGE	N	TEETH at RISK		MEAN DECAYED $\pm$ SD	MEAN FILLED $\pm$ SD	PER-CENTAGE DECAYED	PER-CENTAGE FILLED
		def	ISD				
4	13	19.90 $\pm$ 0.27	12.40 $\pm$ 8.83	8.92 $\pm$ 3.27	0.38 $\pm$ 1.38	71.94	3.06
5	28	19.50 $\pm$ 1.17	13.20 $\pm$ 8.94	9.78 $\pm$ 4.99	0.42 $\pm$ 1.37	74.09	3.18
6	35	11.90 $\pm$ 0.16	7.66 $\pm$ 7.34	5.76 $\pm$ 3.42	0.68 $\pm$ 1.81	75.20	8.88
7	38	11.80 $\pm$ 0.51	8.51 $\pm$ 7.70	6.31 $\pm$ 3.89	1.02 $\pm$ 2.37	74.15	11.99
8	29	11.10 $\pm$ 1.39	8.15 $\pm$ 7.01	5.79 $\pm$ 3.32	0.89 $\pm$ 1.89	71.04	10.92

dental clinic at Sandy Lake is in the school and children are treated during the school day, the parents are seldom present. Thus, the important link between dentist and parent is not established. The high caries experience of four-year-olds also highlights the fact that pre-school children are very seldom seen by visiting dentists, which negates the possibility of educating their parents.

A problem in the past has been lack of continuity in the school fluoride rinse program. Over the last three years, a weekly rinse program using a 0.2 per cent solution of sodium fluoride has been implemented in all the schools and is in effect only during the school year. The program is carried out under the direction of the staff hygienist, based in Sioux Lookout, and who is responsible for the entire zone. In each community, the Community Health Representative (CHR) is responsible for visiting the schools on a weekly basis to provide the program for the children. In Sandy Lake, the person responsible for the program is the dental assistant and not the CHR, who is too busy with other duties in such a large community. Since this program involves the 25 communities in the Zone, its success in each area is dependent on the abilities of a wide range of individuals.

As a result of these findings, it becomes clear that an evaluation of the program in general must be carried out and certain recommendations must be made. Even though continuity of dentists cannot be assured, continuity of treatment can — through ensuring that once treatment has been started for a patient, it must be completed by subsequent dentists. Each child, when examined, should receive a topical fluoride treatment so that the benefits of fluoride are systematically received. The weekly fluoride rinse programs as instituted, should be maintained, with close monitoring of the local personnel who supervise the service. This should be in the form of repeated on-site visits by the hygienist. A recall system should be set up and, in light of the findings of the present study, a far greater effort made by dentists to treat the younger age groups.

It is also important that some measure of recording the success and failures of caries control be instituted. This may be accomplished by dentists recording DMF and def indices on a representative sample from each community and storing these data for comparison with those collected in subsequent years. Ten years between studies does not provide close enough monitoring.

Dentists should also make as much effort as possible when in a community to meet parents of both pre-school and school children, in an attempt to educate them in the importance of caries prevention and the

benefits of good dental health. In view of the findings in the present study, education of mothers of young children in the benefits of early weaning from the nursing bottle, or better, encouraging breast feeding, will help control the high rate of caries in the pre-schooler.

There is no question, however, that such a high level of caries requires large amounts of dental manpower to bring it under control. It is possible that in some of the smaller communities, where access to patients is easier, the restored portion of the DMF index is higher than that for Sandy Lake. It is hoped that in the near future, surveys may be conducted in these communities to confirm or negate this supposition. The mere size of Sandy Lake indicates that the services of a full-time dentist for a few years would at least take care of the reparative problems of the population's dentition. To requote Holloway,²⁶ this would merely be a palliative solution. It is time to look at the possibilities of training some other type of dental auxiliary, recruited from within the community, who would be responsible for preventive programs and creating a dental awareness within each community.^{3,27,28}

Ultimately, however, the Indian people of the Sioux Lookout Zone must accept responsibility for their personal health and dental care. The dental profession can provide the means by which the dentition can be repaired but the Indian patients cannot remain passive recipients. There must be an active attempt on their part to improve their

oral health by local measures and self-discipline. Unless this happens, the dental service will only be able to control dental disease in the palliative manner postulated by Holloway.²⁶

Summary

Despite the provision of dental services since 1969, the caries levels of the Indian children in Sandy Lake have undergone no statistically significant changes over a 10-year period from those recorded in 1973. It would appear that the early manpower problems associated with providing

TABLE VII

The caries experience of deciduous maxillary lateral and central incisors Sandy Lake, 1983

AGE	N	TOOTH	PERCENT DECAYED	PERCENT CONTRIBUTION to TOTAL DIET
4	13	Central incisor	92.00	25.70
4	13	Lateral incisor	67.50	
5	28	Central incisor	88.00	25.60
5	28	Lateral incisor	86.50	

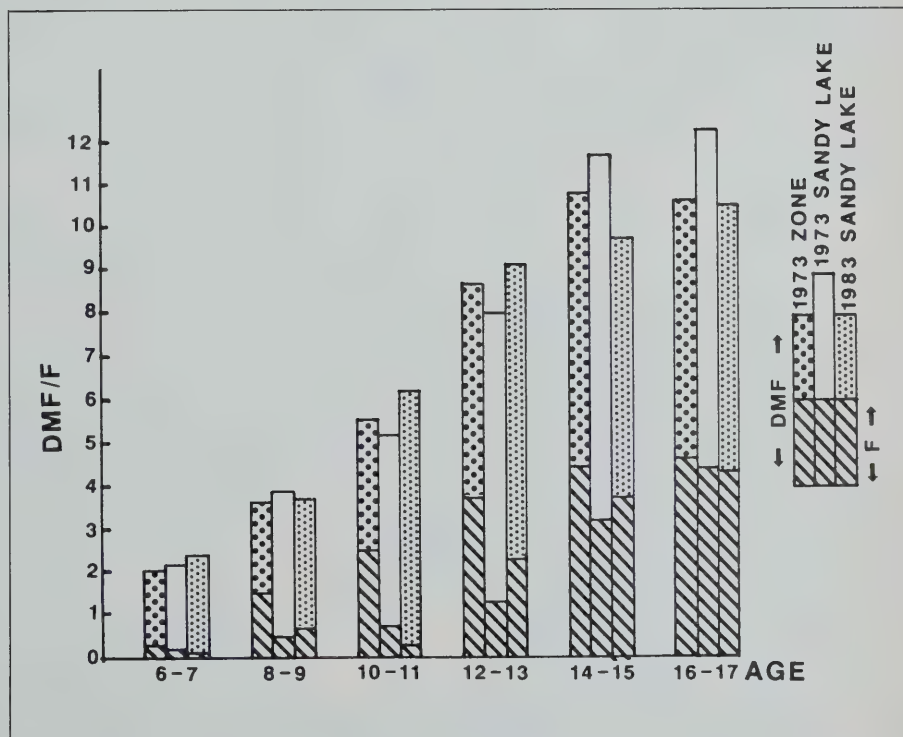


Fig. 1. Histogram to show caries experience in the Zone in 1973 and Sandy Lake, 1973 and 1983.

dental services are a thing of the past and dentists now visit communities on a regular basis. It is apparent, however, that until solidly based preventive programs incorporating fluorides, fissure sealants and education, become a major component part of the service, the dentist's role in controlling dental disease will be mainly palliative. A suggestion is made that locally recruited and trained auxiliaries be utilized to supervise and monitor fluoride programs, and through education create an awareness of the benefits of good dental health within the communities of the Sioux Lookout Zone.

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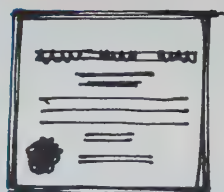
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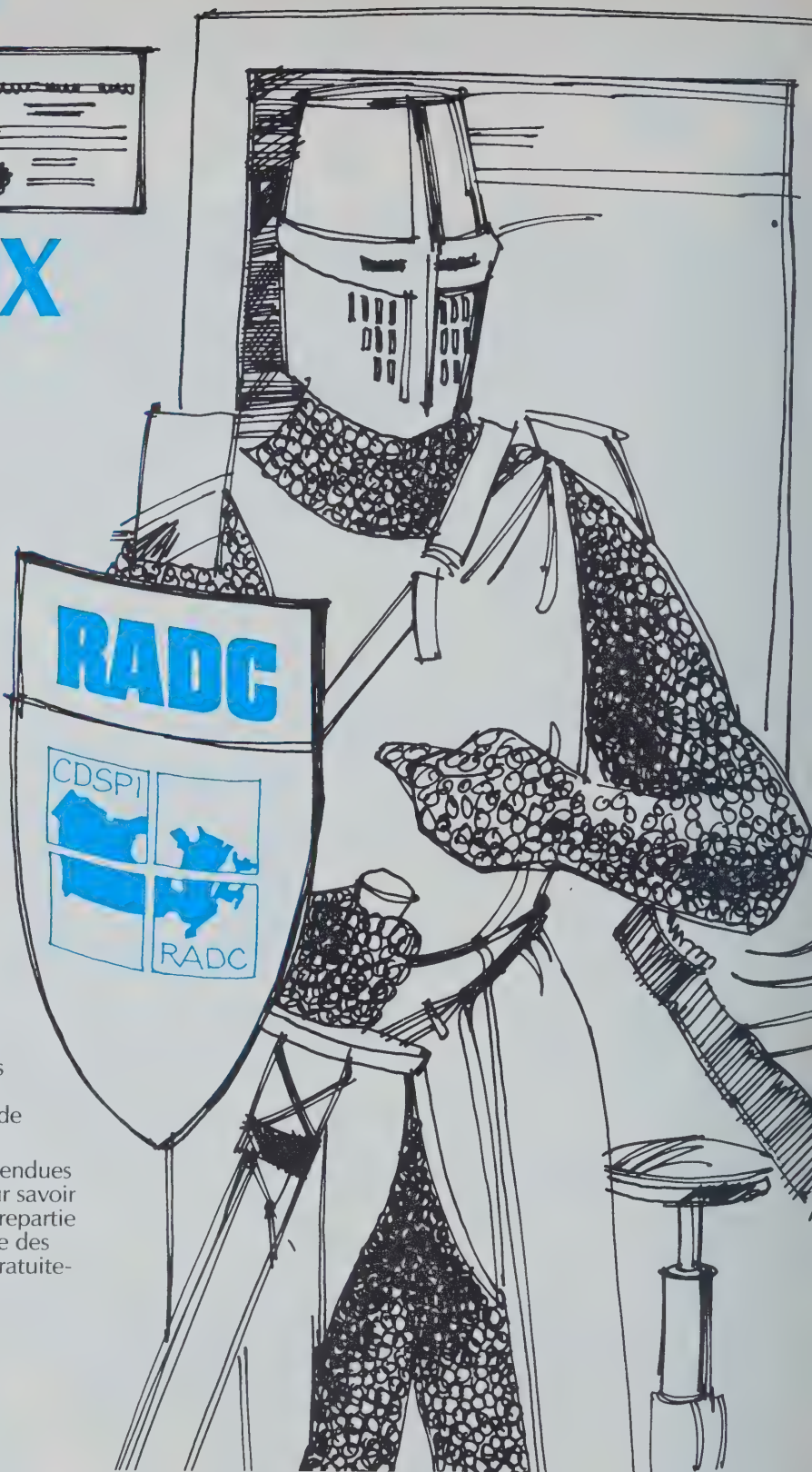
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Specialty Features

TAX CONSIDERATIONS AT THE TIME OF BUYING/ SELLING A DENTAL PRACTICE

Ronald M. MacKenzie, B.Comm., C.A.
Vancouver, B.C.

As I review my personal situation as well as my clients', I realize that a certain amount of retirement planning is required throughout our professional careers. As part of the planning process, I believe that proper tax planning, along with the related financial considerations, form a most significant factor. Death and taxes certainly are inevitable, but if one is to enjoy retirement, then current planning in each area is critical.

Tax and accounting considerations at the time of the sale or purchase of a dental practice can be outlined under the following five broad categories:

1. Sale of the unincorporated practice;
2. Sale of the related management company;
3. Sale of the incorporated practice;
4. Remaining a resident of Canada for income tax purposes;
5. Becoming a non-resident of Canada for income tax purposes.

1. Sale of the Unincorporated Practice

The initial consideration is the timing of the date of sale. For tax planning purposes, it is most beneficial to the vendor to have the closing date subsequent to the normal fiscal year-end of the dental practice. For example, if the dental practice has a fiscal year-end of January 31st, then a date of sale in February would be beneficial. The effect would be to defer the personal income taxes, due as a result of the profit on the sale of the practice, for one year. This is because of the fact that any profit in the practice financial statements at its normal year-end, would be included in the dentist's total income for that calendar year.

For example, if a dental practice has a January 31, 1986 fiscal year-end, then its income shown on the January 31, 1986 financial statement will form part of the 1986 income realized by the dentist during his current calendar taxation year. Accordingly, if a dental practice is sold on February 1, 1986, then it does not form part of the income until January 31, 1987. As such, it will form part of the income for the 1987 calendar taxation year. This will result in a one year deferral of personal income taxes. An added benefit may be that the resulting income in 1987 may be taxed at a lower marginal income tax rate because of retirement, than if it was included in the dentist's 1986 taxation year.

It is not always possible to sell a dental practice near your fiscal year end. A situation could arise where the normal fiscal year-end is January 31, 1986; however, the practice is sold on July 15, 1986. The Income Tax Act states that "when a business, which includes a professional practice, ceases to exist, then a final financial statement is prepared at that time". This would result in a short fiscal period ending July 15, 1986. Since the dentist already has one fiscal year-end in his calendar year, being the previous January 31, 1986 financial statement, he will face an extra tax burden with the July 15, 1986 financial statement also being added to form his income for his 1986 personal taxation year, which again is on a calendar basis.

Two disadvantages arise. Firstly, the income as a result of the sale of the practice will be taxed one year earlier than if it was sold during the following year, and secondly, the marginal income tax rate of the dentist may increase as a result of the addi-

tional income recognized during the calendar year. The solution in this instance then, is to ensure that an election is utilized which will permit the practice's fiscal period to continue to its next normal fiscal year-end, which would be January 31, 1987. Therefore, the income would not be recognized by the dentist until the year following the year of sale; 1987 rather than 1986. If however, the marginal tax rates are expected to be higher in the year following the year of sale, then the income can always be realized during the year of sale by not utilizing the election.

An allocation must be made of the disposition proceeds amongst the related assets. They are normally "supplies, equipment, leasehold improvements, and goodwill". Each of these classifications has a different capital cost allowance, or depreciation rate. The vendor is better off if as much of the allocation as possible is made to assets with resulting capital gains treatments. In effect, only one-half of the profit will then be taxable. In addition, the May 23, 1985 budget proposals presented by the Minister of Finance provide a cumulative exemption for capital gains up to a lifetime limit of \$500,000. The exemption will be phased in over six years starting in 1985. The exemption will have a cumulative limit of \$10,000 of taxable capital gains in 1985, rising to \$25,000 of taxable capital gains in 1986, \$50,000 in 1987, \$100,000 in 1988, \$150,000 in 1989 and \$250,000 in 1990 and subsequent taxation years. Accordingly, consideration should be given to maximizing the cumulative effect of the capital gains exemption wherever possible by deferring the recognition of the sale of the practice to a subsequent year. In addi-

tion, allocations to "goodwill" result in an attractive tax treatment to the vendor since only one-half of the disposal proceeds are credited to the "goodwill" account, and will eventually be treated as ordinary income. However, an allocation to "supplies" which has been previously expensed, is the least attractive, as 100 per cent of that allocation must be brought into income. Two considerations must be kept in mind when attempting to allocate the sale amount. Firstly, what is beneficial to the vendor is generally not beneficial to the purchaser. A dichotomy develops which must be negotiated. Secondly, the Minister of National Revenue can change the amounts if they are deemed unreasonable.

2. Sale of the Related Management Company

Quite often a management company exists, which handles the accounting and financial matters for the dental practice, in return for a management fee. Tax deferrals and minimization techniques are both available. The benefits are maximized, if proper tax planning takes place prior to the sale; not subsequent to the sale. In this instance, I am not referring to investment holding companies which are primarily used to act as an investment vehicle for the shareholders. For various tax reasons, it is normally disadvantageous to mix investment income with other types of income in the same corporation. This discussion also assumes that the management company owns the various assets as well as the lease for the premises. These items, of course, would form a necessary part of the overall dental practice.

Management companies continue to benefit dentists in terms of tax deferrals and tax reductions. Recent budget proposals enacted by the present Government have further supported management companies. For purposes of this discussion, the management company is not the same as the incorporated practice, although a current management company can be utilized as the incorporated practice, if the share capital is properly structured. In contemplation of a sale, the first consideration is for the management company's shareholders to sell their shares of the company to the purchaser, rather than the assets of the management company. The sale of the shares would normally result in capital gains treatment to the vendor, which means only one-half of the gain is taxable. In addition, the capital gains exemption rules would apply. However, a purchase of shares by the purchaser is not in his or her best interest. There may be some contingent or unknown liabilities in the company.

These would continue to be the responsi-

bility of the company even though the shareholders had changed. There is also no asset base for depreciation or capital cost allowance, as there would be if assets were purchased rather than shares. This will have the effect of increasing the taxable income of the purchaser. The result is generally a lower price for the sale of shares, rather than the sale of assets. This is simply recognizing the negative tax and legal matters.

When goodwill is sold, it must be purchased by the dentist, not the dentist's management company if there is one. Professional goodwill can only accrue to an individual, not to a company.

If the management company shares are not sold, then the sale of the individual assets will take place, which will normally result in a profit to the company. Accordingly, consideration should be given to accruing a reasonable bonus at the fiscal year-end of the company in order to reduce, or eliminate, the corporate taxes. The bonus can then be allocated at the following fiscal year-end to an individual. It would then form part of that individual's personal income during that calendar year. For example, if the company sold its assets during the year ending January 31, 1986, which resulted in a \$50,000 profit, then a bonus of \$50,000 could be accrued at January 31, 1986. This would reduce the corporate taxable income, and resulting corporate income taxes, to zero. The bonus would then be allocated on January 31, 1987 to an individual. The appropriate 1987 T4 slip would be issued in due course. The recipient would pay personal income tax as it formed part of his 1987 income. Withholding taxes should be deducted and remitted by the 15th of the month following the eventual allocation of the bonus. In this example, withholding taxes would be deducted on February 15, 1987 and remitted shortly thereafter. However, the benefit is that corporate taxes do not have to be paid at the end of March, 1986 as would be the case without a bonus. There is almost a one year deferral. An alternative is to have the company pay corporate taxes, and then have retained earnings available for distribution by dividends to the shareholders. They are taxable to the individuals receiving the dividends, but if there is little or no income received during that year from other sources, then the dividends can attract very little, if any, personal income tax. The choice of alternatives, or a mixing of each, can only be selected after certain calculations are made.

3. Sale of the Incorporated Practice

In provinces where incorporation of professional practices is permitted, it is

generally beneficial to incorporate dental practices, and I expect that more will be incorporated as the benefits become more widely known.

The sale of the incorporated practice is very similar to the sale of a management company. Generally, the incorporated practice would sell its assets, or in isolated cases, the shareholders would sell their shares, to the purchaser. Capital gains treatment is available to the vendor of the shares which results in one-half of the gain being taxable. The capital gains exemption rules will also apply.

The timing of the sale is quite important. The flexibility of selecting the date of sale or the normal fiscal year-end of the unincorporated practice, is not available in this instance. The income will always be reflected at the normal fiscal year-end of the company. For this reason, it is beneficial to sell the company assets subsequent to the company's fiscal year end. If a sale of shares takes place, then the sale should take place subsequent to December 31st. Both of these steps will result in a one year deferral of either corporate or personal income taxes.

If the sale of the incorporated practice is not through a sale of shares, then the sale price must be allocated amongst the various assets. Again, it is beneficial to allocate the disposition proceeds to assets which will result in a capital gain.

If the vendor can allocate the disposition proceeds to assets which will result in more capital gain than depreciation recapture, the taxes are one-half as much. However, as mentioned earlier, the allocation must be reasonable, and is always subject to potential review by the Minister of National Revenue. If he disagrees with the amounts, and they cannot be supported, then a reallocation will take place regardless of the agreement between the vendor and the purchaser. It has been my experience, having been involved in many purchases and sales of practices, that the vendor and purchaser do not have a firm amount in mind for each individual item. This is a normal situation due to many reasonable factors. It then becomes a matter of negotiating the allocation, with the best informed person usually coming out ahead.

4. Remaining a Resident of Canada for Income Tax Purposes

If a management company remains after specific assets are sold, and if a capital and/or non-capital loss remains, then the company should be converted to an investment holding company. Existing investments should be transferred, tax free, to it in order to utilize the losses. The after tax

corporate profits could then be used to reduce loans to a shareholder. The result is little, or no tax, at corporate and personal levels. However, careful review of your capital gains exemptions status is required.

Forward averaging could also be beneficial. You can elect to pay personal income tax at the highest rate on certain amounts in any taxation year, and draw it out later when you are in a lower tax bracket. Certain criteria must be met which are not onerous. You should automatically elect to forward average when in a high income tax bracket. The net result is a lower effective tax rate, through time.

5. Becoming a Non-resident of Canada for Income Tax Purposes

The following are some of the criteria for becoming a non-resident of Canada:

- The sale of your principal residence, or leased for more than one year.
- Furniture sold or moved out of Canada.
- Family members moved out of Canada.
- Cancellation of bank accounts, credit cards, driver's license, provincial health plan and miscellaneous memberships.

While there is no Canadian tax due specifically because a person is no longer a resident of Canada, certain dispositions will be deemed to have taken place at the time that the person is no longer a Canadian resident for tax purposes. The tax which results is sometimes called a "departure tax". Immediately prior to becoming a non-resident, a taxpayer is deemed to have disposed of his capital property, except "taxable Canadian property", at fair market value. "Taxable Canadian property" is defined as Canadian real estate, shares in Canadian private companies and other specified items. The deemed disposition rules include shares in public corporations, foreign real estate, corporate bonds, shares in non-resident corporations, certain partnership interests, and listed personal properties such as works of art, jewellery, rare manuscripts, etc. The result of the deemed dispositions, could result in taxable capital gains or losses. The taxable capital gain must be in excess of \$2,500 before taxes will apply. Depreciation recapture is not subject to tax.

There are two alternatives available to alleviate the departure tax burden. Firstly, the taxpayer can elect to pay the tax liability, plus accrued interest, in six equal annual instalments upon providing adequate security; or secondly, the taxpayer can treat certain properties as taxable Canadian property, and thus defer the tax on the appreciated value, until the actual disposition; security will be required. The depart-

ure tax may be avoided by transferring "non-taxable Canadian property" into a Canadian private corporation in return for its shares. Tax-free rollover elections are available for this purpose. The shares, then, are "taxable Canadian property" and thus exempt from the departure tax rules as mentioned earlier.

The taxpayer should consider transferring his Registered Retirement Savings Plan (R.R.S.P.) to a new R.R.S.P. prior to his departure. This will have the effect of capitalizing the accrued interest which will then form the base for the new plan. Then, the U.S. taxes are exigible only on the interest portion, accruing after departure, on future R.R.S.P. payments.

Certain tax elections are available to non-residents in order to reduce their Canadian taxes. It may be preferable to file a Canadian tax return, rather than incur the tax liability of Canadian withholding taxes on various pension benefits and retiring allowances, which would include R.R.S.P., R.R.I.F., D.P.S.P., and alimony payments. A comparison must be made between the individual's Canadian marginal tax rates and the Canadian withholding tax rates. It is also possible to pay the Canadian taxes on the net rental income of a property, instead of having Canadian taxes withheld on the gross rental revenue.

The Tax Reform Act of 1984 was signed by President Ronald Reagan on July 18, 1984. It represents the most extensive and important change to the U.S. Internal Revenue Code since 1954 and will have a major impact upon international tax planning, not to mention the effect on domestic taxation. As a result, many previous planning techniques are no longer available. It is imperative that a Canadian taxpayer seek proper advice on Canada/U.S. taxation matters prior to his departure from Canada.

In conclusion, the important point I would like to leave with you is this: retirement planning is not something which we should consider as we approach retirement age. It is something which must be considered throughout our professional careers. The degree of impact and, therefore, the amount of retirement planning required, increases as we approach our retirement. Retirement is not necessarily the act of reaching a predetermined age. It is the ability to practice our professions to the extent that we wish. In order to accomplish this objective, it is imperative that proper retirement planning, including tax and accounting planning, takes place throughout our professional careers.

Mr. MacKenzie is a Chartered Accountant with his own practice in Vancouver which specializes in providing tax and accounting services to members of the medical and dental professions. He has been a member of the Canadian Tax Foundation since 1976.



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RIEGER'S SYNDROME

SEVERE DENTAL ANOMALIES WITH MILD OPTHALMIC CHANGES — A CASE REPORT

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ABSTRACT

Rieger's Syndrome is a rare autosomal dominant inherited disorder comprising both ophthalmic and dental manifestations. The ophthalmic disorder varies from mesodermal dysgenesis to juvenile glaucoma and is the most serious component of the syndrome. Because hypodontia accompanies the ophthalmic disorder and may be the first disturbance to manifest itself in the syndrome, the dental practitioner should include this disease entity in the differential diagnosis of hypodontia.

SOMMAIRE

Le syndrome de Rieger est une maladie héréditaire rare à transmission autosomique dominante comprenant des manifestations ophtalmiques et dentaires. Les désordres de caractère ophtalmique vont de la dysgénésie mésodermique au glaucome juvénile et constituent les symptômes les plus sérieux du syndrome. Comme l'hypodontie accompagne les désordres de caractère ophtalmique et peut être le premier signe du syndrome, le praticien dentaire doit inclure cette maladie dans le diagnostic différentiel de l'hypodontie.

Autosomal dominant inherited disorders are noted for their phenotypic variability. This variability sometimes leads to confusion in diagnosing a syndrome when classical elements are poorly expressed. Rieger's syndrome is an autosomal dominant inherited disorder expressed as a goniodysgenesis in association with an oligodontia dysgenesis. Classically, the diagnosis relies strongly on ophthalmic disturbances. This article will deal with a case of Rieger's syndrome in which ophthalmic change is mild, resulting in a difficult diagnostic problem.

The association between goniodysgenesis and oligodontia dysgenesis as an autosomal dominant inherited disorder was first published by Rieger in 1935.¹ Since then, the literature has only contained sporadic case reports of Rieger's syndrome, demonstrating its rarity.

The ophthalmic complications of the syndrome involve anterior mesodermal dysgenesis with hypoplasia of the anterior stromal layer of the iris.² Adhesions from the iris extend to the cornea and the trabecular network.³ These adhesions cross the angle to a prominent and often displaced Schwalbe's line.² Abnormally shaped or displaced pupils may occur³ as well as microcornea, corneal opacity, optic atrophy

or complete aniridia.⁴ When iris hypoplasia is marked with no corneal involvement, the term iridogoniodysgenesis is preferred over goniodysgenesis.⁵ Congenital ectropion uveae² and iridocorneal endothelial (ICE) syndrome⁶ have also been reported. The most serious complication of Rieger's syndrome is infantile glaucoma, which occurs in approximately 50 per cent of those affected.²

The associated dental manifestations result from oligodontia dysgenesis with or without maxillary hypoplasia.⁴ The clinical picture is one of microdontia,⁷ variable anodontia,⁷ conical teeth,⁸ and a slight tendency towards prognathism due to the underdeveloped premaxilla and hypodontia.⁴

A third component of the syndrome which has shown some consistency in expression is exomphalos of the umbilicus.^{3,9} Other defects have been noted but have occurred in only one of several patients. These have been summarized by Heckenlively, Isenberg and Fox,³ Riekman⁴ and Smith.¹⁰ They are mental retardation, myotonic dystrophy, cerebellar hypoplasia, conduction deafness, anal stenosis, agenesis of the facial bones, hypertelorism, flattened nasal bridge, vertebral and limb malformations, hypospadias and congenital heart defects.

As stated previously, variability in phenotypic expression is the rule in autosomal dominant disorders. It is difficult to determine when a particular defect is part of a syndrome or has occurred by chance except for its phenotypic frequency. It has been estimated that the phenotypic penetrance for Rieger's syndrome is high at 95 per cent¹¹ and that the syndrome has a 70 per cent chance of being inherited as an autosomal dominant disorder or a 30 per cent chance of occurring as an isolated event.¹¹ The syndrome affects mainly those elements which are derived from neural crest cells.²

Case Report

A 17-year-old Caucasian female was referred to the dental clinic at St. Mary's of the Lake Hospital, Kingston, Ontario, by her family dentist because of numerous missing permanent teeth and for improvement of her appearance. She had previously rejected a LeFort I osteotomy and the fabrication of an overdenture to correct her problem. Her medical history was negative.

Clinical examination revealed a moderate prognathic appearance (Fig. 1), microdontia of the existing permanent teeth, and numerous missing permanent teeth: the upper right canine, first and second bicusps and second and third molars; the upper left first and second bicusps; the lower left first incisor, second bicuspid, and second and third molars; and the lower right first incisor and second and third molars. A panoramic radiograph (Fig. 3) confirmed the missing teeth and demonstrated that the existing deciduous teeth were in the latter stages of exfoliation. A lateral cephalometric radiograph (Fig. 2) exhibited an underdeveloped maxilla, accounting for her prognathic appearance. Through a genetic

questionnaire and clinical examination, it was revealed that some siblings demonstrated some of these characteristics. Of three elder sisters, one was missing the upper right first and second bicusps. Of two younger brothers, one was missing 10 permanent teeth: the upper right second and third molars and first and second bicusps, the upper left third molar and first and second bicusps, the lower left third molar and second bicuspid and the lower right third molar. He also had a slightly prognathic profile (Fig. 4). There was no report of any other close or distant family members with this problem (Fig. 5).

The combination of negative medical history, normal intelligence, severe anodontia, microdontia, underdeveloped maxilla and the fact that three out of six siblings were affected, led to a preliminary diagnosis of Rieger's syndrome. The patient was referred to an ophthalmologist for evaluation. That examination revealed an almost undetectable corneal embryotoxin in association with a spectrum of mesodermal dysgenesis. Other family members have no ophthalmic changes. The diagnosis was finalized as Rieger's syndrome with severe dental manifestations and mild ophthalmic disturbance.

The patient's deciduous teeth were extracted using local anaesthetic and cast partial dentures were fabricated to improve her appearance. The patient was satisfied with the result. This stabilized her condition and left her with the option of more extensive therapy in the future if she so decided.

Discussion

This article presents a case of Rieger's syndrome which demonstrated severe dental anomalies in combination with

mild ophthalmic defect. The genetic interview seems to indicate that the syndrome appeared spontaneously in the patient's generation. This is not unusual for Rieger's syndrome.¹¹ The severe hypodontia, in particular the loss of incisors⁴ with no other obvious somatic disorders, indicated a possible Rieger's phenomenon. These factors also differentiated it from other syndromes with hypodontia: anhidrotic ectodermal dysplasia, incontinentia pigment, orofaciocigital syndrome, Hallermann-Streiff Syndrome, and premolar aplasia-hyperhidrosis-cavities prematuria (PHC) syndrome.¹² A difficult diagnostic problem was caused by the mild goniodysgenesis in the patient plus the lack of clinical evidence of goniodysgenesis in other family members. This was probably the result of incomplete phenotypic penetrance. Maxillary hypoplasia with the associated hypodontia resulted in a complex reconstruction problem. Since the patient declined any extensive reconstruction dentistry at the time, conservative therapy was used to stabilize her condition.

Conclusion

In any situation where hypodontia is unusual, either in number of teeth or particular teeth involved, underlying causes should be investigated. Incomplete or poor phenotypic expression can complicate syndrome clarification.

I wish to thank Linda Brown and Jenepher Hemsted for their typing and editorial help. Thanks also to Dr. R. Van Winkle, Dr. W. Fogel and Dr. A. Kerr for their assistance. To Penny Levi, special thanks for her help in researching the literature on Rieger's syndrome.

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Figs. 1. A and B. Photograph of patient. Note the moderate prognathic appearance.



Fig. 2. Lateral cephalogram demonstrating maxillary hypoplasia.

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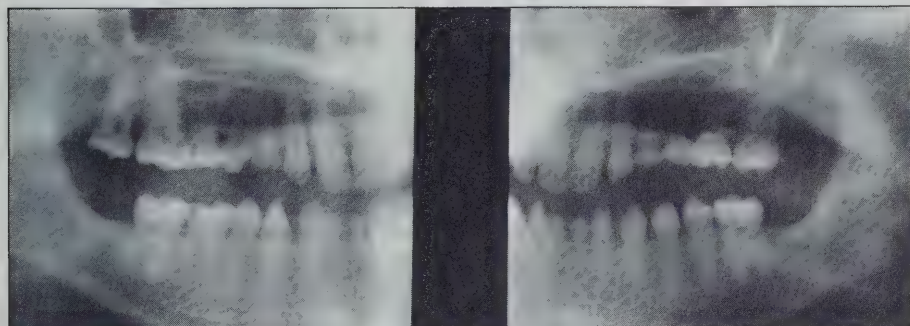


Fig. 3. Panoramic radiograph (left to right). Note numerous missing teeth, particularly the lower central incisors.

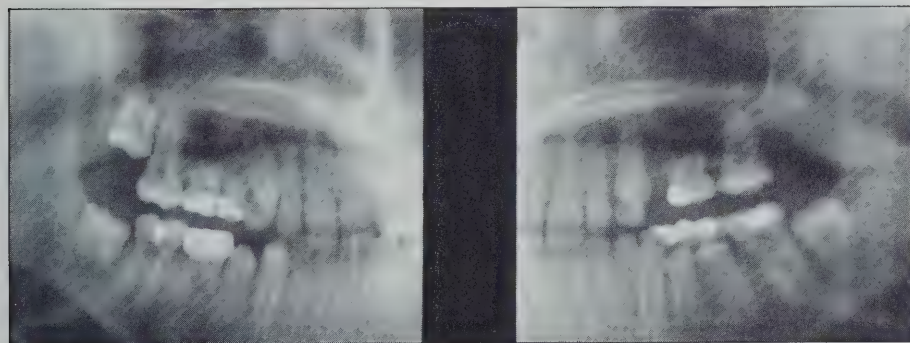


Fig. 4. Panoramic radiograph of the patient's brother (left to right). Missing 10 permanent teeth.

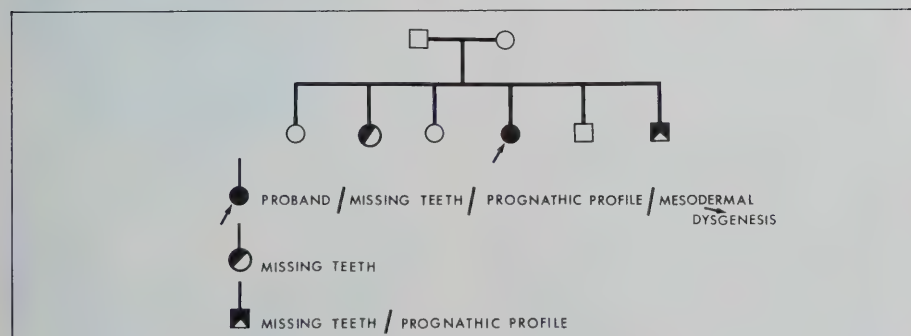


Fig. 5. Patient's family pedigree.

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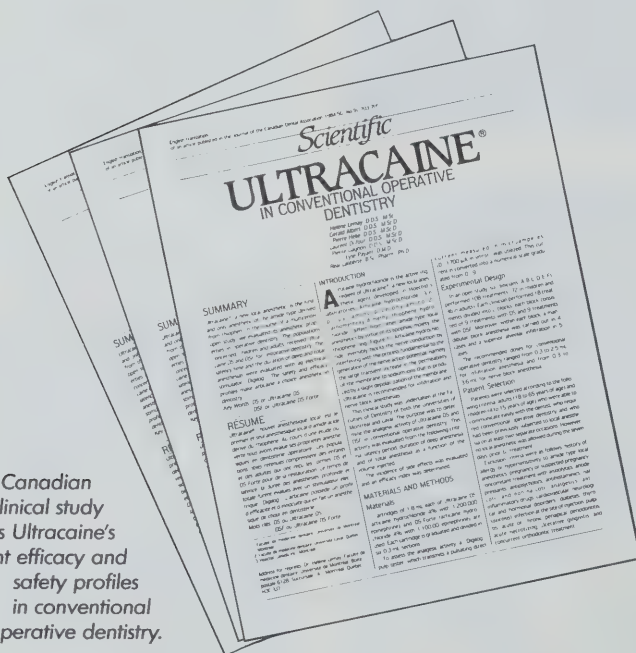
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LIGHT-CURING UNITS

AND PROTECTIVE FILTERS

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ABSTRACT

We present a study of two dental light-curing units which incorporate intense sources of visible light. The spectral output at a typical working distance is compared to industrial standards for optical radiant exposure, and the retinal hazard to dental personnel using this equipment is evaluated. Under normal conditions of use, protective lenses to avoid photochemical retinal damage are not necessary.

SOMMAIRE

Voici une étude portant sur deux appareils de polymérisation dentaire avec des sources lumineuses intenses. On a comparé leur rayonnement spectral à une distance de travail normale aux normes industrielles fixées pour l'exposition aux radiations optiques et on a étudié les dangers que ces appareils pouvaient constituer pour les rétines des gens qui les utilisent. On a découvert qu'à l'usage ordinaire, il n'était pas nécessaire de porter des verres protecteurs pour éviter des dommages de caractère photoclínique aux yeux.

Photopolymerized resins are a class of plastic materials which are cured by the exposure of the mixed constituents to an intense source of optical electromagnetic radiation. The first such resins used as dental restorative materials were introduced in 1972 by the L.D. Caulk Company. This material, marketed as NUVA-Fil, was polymerized by ultraviolet radiation produced by a NUVA-Lite source which emitted intense radiation in the waveband 320nm to 365nm. In

recent years, the use of intense ultraviolet radiation sources has been discouraged, and dental restorative manufacturers have introduced resins which can be polymerized with visible light, as well as appropriate light-curing units.

Perhaps the most important reason for abandoning the use of ultraviolet-cured photopolymerized resins is the growing body of experimental and epidemiological evidence of the phototoxic effects of long-wavelength ultraviolet radiation on the retina, crystalline lens and other ocular tissues. Until 1970, it was believed that photic damage to the retina was caused by exposure to visible light and near infrared radiation.¹ However, the observations of Friedman and Kuwabara,² Noell, et al³ and Haworth and Sperling⁴ demonstrated that white light alone, and short wavelength (blue) light especially could produce retinal lesions at levels far lower than those required by exposure to near infrared. Ham et al⁵⁻⁷ have demonstrated that the "photochemical" mechanism for photic retinopathy is extremely efficient when radiation between 400 and 460nm is used. Ham⁸ has also observed an ultraviolet mechanism in the aphakic rhesus monkey which is approximately two orders of magnitude more effective than the blue light mechanism in producing irreversible retinal lesions. These mechanisms may be greatly enhanced if an individual is exposed to frequently repeated exposures at near threshold irradiance levels, or if the individual is taking photosensitizing drugs (e.g. 8-methoxypsoralen).⁹

In reaction to these findings, several manufacturers have introduced tinted

lenses which they recommend to be worn by dental surgeons and assistants who are operating resin-curing units. Therefore, in this study we posed three questions:

1. Are presently used resin-curing units a retinal hazard?
2. What ophthalmic appliance would provide *simultaneously* optimum retinal protection and relief from glare, giving comfortable vision in the immediate surround of a curing unit light source?
3. Are the currently recommended protective filters adequate or indeed necessary?

Materials and Methods

Two commercially available resin-curing units, the Pluroflex and Initiator, were obtained from the sales stock of a dental equipment distributor. For the purpose of this study, we operated the Pluroflex in the "white" mode. The Initiator was operated with its blue "curing filter" placed on the working end of the light pipe in accordance with the operating instructions.

The light pipe of each unit was mounted on an optical bench to emit horizontally. The entrance optics to the spectroradiometer were positioned in the vertical plane 20 cm from the working end of the light pipe so that the light was received at normal incidence. The distance was chosen as a typical close working distance for the unit operator.

The spectral output of each unit was measured over the waveband 350 to 700 nm using an Optikon-Photodyne spectroradiometer calibrated with a 1000-W incandescent secondary standard source traceable to a National Bureau of Standards calibration. The spectral irradiance curves are

shown in Fig. 1. The total source irradiance was then calculated by integration of each curve and compared to published threshold data for blue light-induced photic retinopathy.⁶⁻⁷

Luminance measurements of each source were made with a Spectra Pritchard spot photometer Model 1980-OP, using the 3° field aperture. The light pipe luminances of the two sources were compared with the level of source luminance giving discomfort glare according to the formula of Petherbridge and Hopkinson:¹⁰

$$L_s \leq \frac{1}{\theta} \left(\frac{1076 L_0}{0.824} \right) 0.625$$

where L_s is the source luminance, L_0 is the adapting luminance in cd.m^{-2} and θ is the angular subtense of a small source in radians.

The last part of the study was a determination of the maximum transmittance level for tinted lenses which permitted comfortable direct viewing of the beam from the light pipe as well as the immediate surround without troublesome after images. Three subjects with normal colour vision and visual acuity used a variable neutral density filter to view each operating light pipe at a distance of 20 cm. The end point was reached when fine details of the apparatus immediately surrounding the end of the light pipe could be viewed without a sensation of dazzle and without induction of persistent after-images. This was repeated with the subject wearing a yellow filter (shortwave length cut off at 440 nm). These data were compared with the transmittance data of several protective lens tints which have been suggested for use with resin-curing units.¹¹

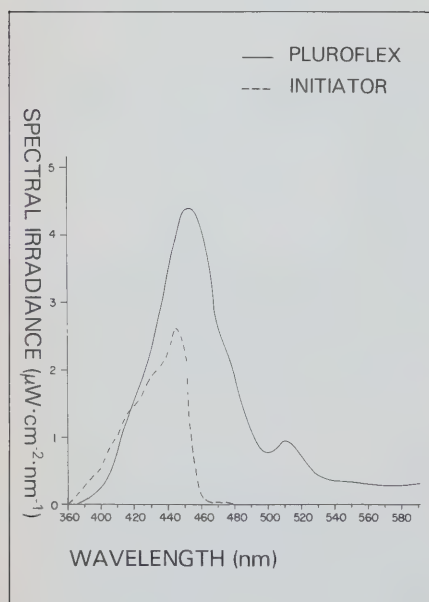


Figure 1. Spectral irradiance curves of the Pluraflex and Initiator resin-curing units.

Results

Figure 1 displays spectral irradiance curves at 20 cm distance for the two resin-curing units. The Initiator has a well-defined emission spectrum between 360 and 480 nm, with the peak energy at 445 nm of $2.7 \mu\text{W.cm}^{-2}\text{nm}^{-1}$ at 450 nm. There is a secondary peak at 510 nm of $0.95 \mu\text{W.cm}^{-2}\text{nm}^{-1}$. The overall irradiance of the two sources at 20 cm are 269.40 and $100.83 \mu\text{W.cm}^{-2}$ respectively. These data appear in Table I.

Table I also summarizes the results of our luminance measurements and glare calculations, assuming an adapting luminance of 100 cd.m^{-2} and a source (light pipe) diameter of 5 mm viewed at 20 cm. The angular subtense of the source is 0.025 radian. The discomfort glare formula yields the result:

$$L_s \leq 3.26 \times 10^6 \text{ cd.m}^{-2} = L_D$$

if there is to be no discomfort glare. The "discomfort ratio" L_s/L_D is shown in the table. The neutral density levels required to see without dazzle or persistent afterimages with and without the yellow filter are also tabulated in terms of percentage of energy transmitted. The blue light of the Initiator unit was much easier to tolerate through all filters tested — less dense filters were required for comfortable vision.

Subjectively (confirmed by theoretical calculations) there is sufficient light emitted to create significant interference with visualisation of fine detail within 10° of the source. This interference is referred to as "veiling glare".

Discussion

The American Conference of Government Industrial Hygienists (ACGIH) has published threshold limit value (TLV) exposures for workers exposed on a daily basis to high levels of UV radiation and blue light. In the UV-A waveband (320-400 nm) total irradiance should not be greater than 1 mW.cm^{-2} for periods greater than 10^3 s (approximately 16.7 min) per working day. To avoid a photochemical retinal lesion due to chronic blue light exposure, the integrated irradiance in the visible waveband due to a small source should not exceed $1 \mu\text{W.cm}^{-2}$ for daily cumulative exposures over 10^4 s (approximately 2.75 h); for daily cumulative exposure less than 10^4 s , the total delivered energy should not exceed 10 mJ.cm^{-2} (these visible light exposures being weighted against the ACGIH blue-light hazard function).¹²

We estimate that the total daily operating time of a light-curing unit would be approximately 15 min. If the working end of the curing unit light pipe were viewed directly for this time each day, the TLV for UV-A

exposure would not be reached, but the TLV for the blue light hazard would be exceeded after 56.6 s for the Pluraflex unit, and 122.7 s for the Initiator unit. On this basis, it would seem reasonable to use protective tinted lenses of the types which we have studied previously.¹¹ In Fig. 2 we show spectral transmittance curves for four filters which have been suggested for use with dental light-curing units, and which were used to evaluate veiling glare from the light pipes used in this study. All are for plano power lenses, 2 mm thick, measured with a Zeiss DMR-21 spectrophotometer. Only the Liteshield 520 is available as a prescription lens; the others may be fitted into spectacle frames or clip-on mountings worn over corrective lenses.

In considering the procedures used in operating a light-curing unit, it would appear that retinal protection may not be necessary. Normally the light pipe is placed in contact with the tooth before the light is switched on, and is not removed until after the light is switched off. Thus, the operator and assistant are normally exposed only to a small amount of light reflected from the oral mucosa and tooth surface, or transmitted through the tooth when curing an incisor from behind; the UV and blue light irradiance at the eye will thus be greatly diminished, and the limiting exposure time increased beyond the total estimated operating time of the curing unit.

Two situations may warrant the use of tinted lenses of the types shown in Figure 2: (1) The dentist and/or auxiliary personnel are taking systemic photosensitizing drugs e.g. methoxypsoralen, phenothiazine, chloroquine, sulfonyleurea, and sulfonamide derivatives.¹³ Such drugs are increasingly implicated in phototoxic effects in retinal tissues. (2) The dental personnel experience significant discomfort and/or veiling glare from direct or reflected light. In either case, the choice of tint depends strongly on the type of source, filter and light pipe used in each type of machine. The shortwave cut-off of the protective lens should be matched to the spectrum of the curing unit light at the working end of the light pipe. For convenience of the wearer, the lenses may be mounted in a clip-on frame attached to existing corrective or protective eyewear, so that the tinted lenses can be swung into place when needed.

For the two curing units examined in this study, we recommend the following, should tinted lenses be deemed necessary:

1. For the Pluraflex, an ultraviolet-blocking corrective or protective spectacle (e.g. UV 400, Lite-Gard UV, UV-Lite) with a flip-down ND2 (1% transmittance) filter.
2. For the Initiator, a flip-down orange-yellow filter with a sharp short-wave cut-

off at about 500 nm (e.g. Liteshield 520, Younger PLS550) over present corrective or protective spectacle.

Conclusion

There is little reason to regard dental light-curing units with sources of intense visible light as hazardous to the retinæ of dental personnel, when these units are operated as suggested by the manufacturers. Where there is reason to believe that personnel are especially sensitive to the light emitted by the unit, a protective filter lens may be worn with good effect if its transmittance characteristics are matched to the spectral output of the light source.

We thank Denco Division of Sybron for supplying the Pluraflex and Initiator units, and Buffalo Dental Manufacturing Company of Canada Ltd. and Imperial Optical Limited for supplying the sample protective lenses. We also thank A. Weber for preparing the figures. This study was supported in part by the Natural Sciences and Engineering Research Council of Canada and the Canadian Optometric Education Trust Fund.

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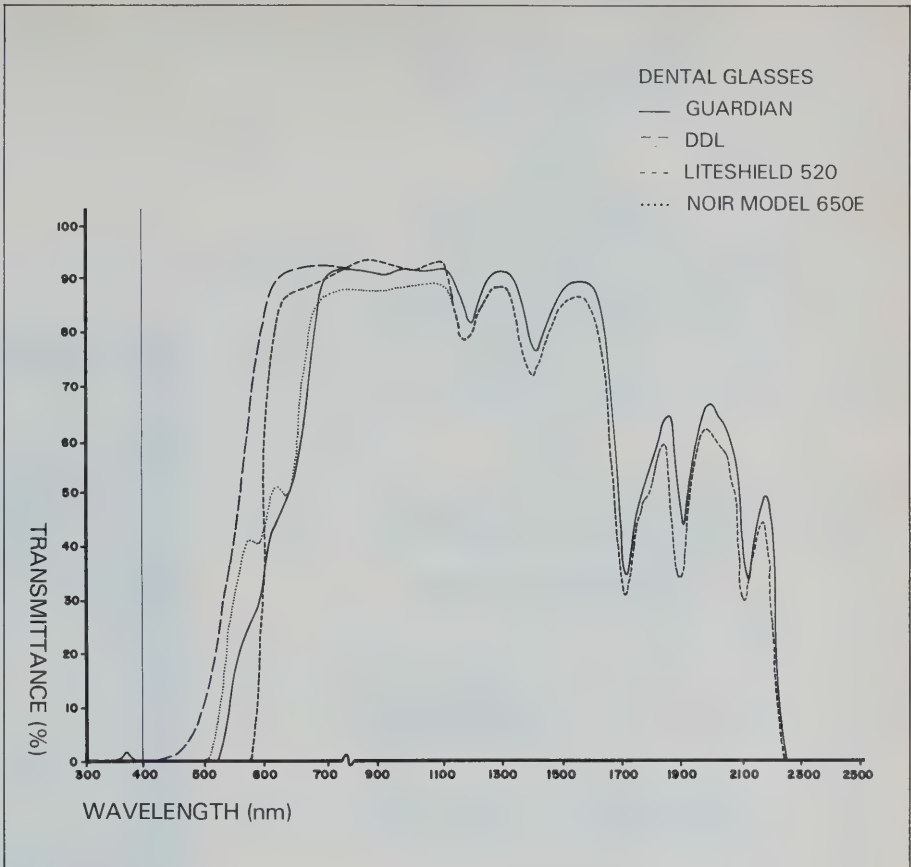


Figure 2. Transmittance curves of several protective filters suggested for use with resin-curing units.

TABLE I

Radiometric and Photometric Data for Resin-curing Units

	Pluraflex	Initiator
Operating Mode	White Light	Blue curing filter
Irradiance* UV-A ($\lambda < 400 \text{ nm}$)	1.07	5.83
($\text{W} \cdot \text{cm}^{-2}$) visible	268.33	95.00
Blue-weighted irradiance* ($\text{W} \cdot \text{cm}^{-2}$)	176.68	81.53
Luminance ($\text{cd} \cdot \text{m}^{-2}$)	5.55×10^6	8.68×10^5
Discomfort ratio	1.70	0.27
ND (%) alone	0.5	2.2
ND (%) yellow filter	2.6	22.7
Vision with Guardian	dazzle	comfortable
DDL	dazzle, after image	comfortable
Liteshield 520	comfortable	comfortable
NOIR 650E	comfortable	comfortable

*at 20 cm working distance

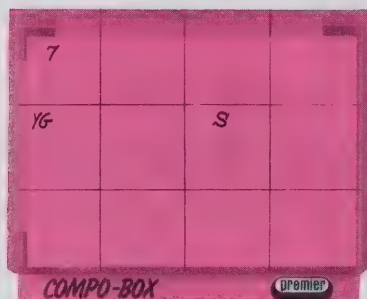
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NOVEMBER/NOVEMBRE

November 2-8: National Crime Prevention Week. Contact: Pauline Dodds, Coordinator, National Crime Prevention Week, Ministry of the Solicitor General of Canada, Ottawa, Ont.

November 5-7, 1986. Symposium on the Biology of Tooth Movement. Sponsored by the University of Connecticut School of Dental Medicine and the National Institutes of Dental Research, at the University of Connecticut Health Center, Farmington, Connecticut. Contact: Cecile J. Volpi or Valerie Vasquezna, at (203) 674-3340. Address: University of Connecticut Health Center, LG006, Farmington, CT 06032.

November 7-9: Myo-tronics Research Inc., presents a seminar entitled "Neuromuscular Diagnosis and Precision Orthotics". New Orleans. Featured speakers will be Dr. W. Edward Duncan and William Oakes, CDT. Contact: Myo-tronics Continuing Education Programs, 206-622-2121.

November 9-15: Fédération Dentaire Internationale. 74th Annual World Dental Congress, Manila, Philippines. Contact: Philippine Dental Association, Komagong Street/Ayala Avenue, Makati, Metro Manila, Philippines.

November 11-16: American Dental Assistants 62nd annual session, Hyatt Regency, Minneapolis, Minnesota. Contact: ADAA, 666 N. Lake Shore Dr. Suite 1130, Chicago, Ill. 60611 USA, 312-664-3327.

November 16-19: Ontario Public Health Association annual education and scientific meeting, Sheraton Centre, Toronto, Ont. The theme is "Acting now - to shape the future". Speakers will include David Suzuki, W. Gifford Jones and Honourable Murray Elston. Contact: George I. Shirton, Public Relations Coordinator, 1335 Carling Avenue, Suite 210, Ottawa, Ont. K1Z 8N8.

November 16-19: The Saul Kamen Seminar on the Dental Management of the Mentally Retarded and the Developmen-

tally Disabled Patient. Teaching Center Auditorium, Long Island Jewish Medical Centre, New Hyde Park, New York. Sponsored by the Dept. of Dentistry, Long Island Jewish Medical Center and the Health Sciences Center, State University of New York, at Stony Brook. \$450 for dentists, \$250 for auxiliaries. Contact: Ann Boehme, Associate Director for Continuing Education, Long Island Jewish Medical Center, New Hyde Park, New York, 11042, 718-470-8650.

November 17-21: Second International Congress on Gerodontology, Stamford-Westin Plaza Hotel, Raffles City, Singapore. Hosted by the Singapore Dental Association. Contact: Organizing Secretary, 2nd International Congress of Gerodontology, Singapore Dental Association, Medical Alumni, 4A College Rd. Singapore 0316, Republic of Singapore.

November 20: Toronto Academy of Dentistry Winter Clinic, Metropolitan Toronto Convention Centre, Toronto, Ont. Contact: Toronto Academy of Dentistry, 234 St. George St., Toronto, Ont. M5R 2P2, 416-967-5649.

November 21-22: Alberta Academy of General Dentistry, Alberta Society of Occlusal Studies and Multi-disciplinary Dental Study Club are co-sponsoring a seminar on Occlusion in the 80's by Professor Hyman Smukler. Contact: Dr. Henry C. Yu, Suite 1201, 10025 106th Street, Edmonton, Alberta T5J 1G4.

November 25-28: 6th Annual Sports Medicine Seminar "Sports Medicine for All Practitioners", Intercontinental Hotel, Maui, Hawaii. Contact: Dr. Stuart Zeman, Course Chairman, 2999 Regent St., Suite 203, Berkeley, California, 94705, 415-540-8686.

November 27-29: International Implant Seminar, Hong Kong. Co-sponsored by the Canadian Society of Oral Implantology and other international implant groups. Contact: Barbara Cleland, Exec. Secretary, Canadian Society of Oral Implantology, Box 84, Site 7, RR 1, Calgary, Alta. T2P 2G4. 403-284-9767.

DECEMBER/DÉCEMBRE

December 5-8: American Academy of Oral Medicine, Washington, DC. Contact: Dr. N. Ross, 1 Lynn Drive, Randolph, NJ 07869.

December 28-31: Indian Dental Association Conference, India. Contact: Indian Dental Association, M75 Connaught Circus, New Delhi, 110001, India.

JANUARY/JANVIER 1987

January 3-4, 1987: Academy of Dental Materials Annual Meeting, Walt Disney World Conference Centre, Orlando, Florida. Contact: Sybil Greener, Executive Secretary, Academy of Dental Materials, Dept. of Biological Materials, Rm. 10-019, Northwestern University Dental School, 311 E. Chicago Ave., Chicago, Ill. USA 312-642-9570.

January 5-8, 1987: The Indian Association for Dental Research Workshop-cum-Conference on Fluoride and Dental Health. Madras, India. Contact: Prof. M. Rahmatulla, Convenor, International Workshop-cum-Conference on Fluoride and Dental Health, Dental Dept. Government Kilpauk Medical College Hospital, Madras, 600 010, India.

January 15-18, 1987. 12th Annual Yankee Dental Congress, Boston, Mass. Largest continuing education event in New England: "Passport to the Future." Contact: The Massachusetts Dental Society, 83 Speen Street, Natick, Mass. 01760-4125, or, telephone (617) 651-7511.

January 17-18: American Academy and Board of Head, Face and Neck Pain and TMJ Orthopedics meeting, Washington, D.C. Contact: American Academy office, Medical Towers Building, Suite 803, 255 S. 17th St. Philadelphia, PA 19103.

January 29-31, 1987: Miami Winter Meeting, Hyatt Regency Miami. Contact: Dotti DuBreuil, Coordinator, Miami Winter Meeting, 420 South Dixie Highway, Coral Gables, Florida, 33146, 305-667-3647.

FEBRUARY/FÉVRIER 1987

February 8-12: Arab Health '87 health care exhibition. Dubai, United Arab Emirates. Contact: Arab Health '87, c/o Fairs and Exhibitions Limited, 51 Doughty St. Gray's Inn, London, WC1N 2LB United Kingdom. Telephone: 01-831-8981.

February 15-18, 1987, 122nd Chicago Dental Society Midwinter Meeting. Chicago Hilton & Towers. Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Ill. 60602. Or, telephone (312) 726-4076.

February 21-28: Virgin Islands Dental Association convention. Topics include: Endodontics, TMJ, Orthodontics, Oral Medicine. Spouses' program. Contact: Dr. Bob Brandon, 85 Lonsdale Dr., London, Ontario, N6G 1T4, 519-657-3368 (residence.)

MARCH/MARS 1987

March 19-21, 1987: CATCH '87: Computer Applications to Canadian Health. Organized by the College of Family Physicians in Canada. Hilton Harbour Castle, Toronto, Ont. Contact: CATCH '87, 4000 Leslie St. Willowdale, Ont. M2K 2H9 416-493-7638.

MAY/MAI 1987

May 10-13, 1987: Ontario Dental Association 120th Annual Spring Meeting. Sheraton Centre Hotel, Toronto. Contact: ODA headquarters c/o Diana Thorneycroft, 234 George Street, Toronto, Ont. M5R 2P1.

May 16-17: International Association for Orthodontics Western Canada Section annual spring meeting. Vancouver, B.C. Four Seasons Hotel (tentative). Contact: Dr. Timothy H. Tam, Pediatric Dentistry, 301-745 West Broadway, Vancouver, B.C. V5Z 1J6, 604-872-0444.

May 24-28, 1987: CDA/ODO Convention, Montreal, Quebec. Contact: Canadian Dental Association, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

JUNE/JUIN 1987

June 7-11, 1987: 11th Congress, International Association of Dentistry for Children, Toronto, Ont. Contact: Secretariat, 11th Congress, IADC, Dept. of Pedodontics, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto, Ont. M5G 1G6.

June 18-21, 1987: University of British Columbia and the College of Dental Surgeons of B.C. 25 year celebration and 1987 Convention. Contact: College of Dental Surgeons of B.C., 1125 West 8th Ave., Vancouver, B.C. V6H 3N4, 604-736-3621.

June 28-July 1, 1987: Pacific Dental Conference sponsored by the Pacific Dental Federation and the Alberta Dental Association, Banff Springs Hotel, Banff, Alberta. Contact: Dr. J. William Blair, 621 Harald Building, Calgary, Alta., T2P 0W7.

June 28-July 1: Conjoint Alberta Dental Association - Pacific Dental Federation Conference, Banff, Alberta. Contact: Dr. G.P. Greeves, 401, 4600 Crowchild Tr. N.W., Calgary, Alta. T3A 2L6, 403-247-2225.

JULY/JUILLET 1987

July 1, 1987: Applications are being accepted for the Postdoctoral Program Dental Diagnostic Science at the University of Texas Health Science Center, at San Antonio, for the class beginning July 1, 1987. Contact: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Dr., San Antonio, Texas, 78284.

SEPTEMBER/SEPTEMBRE 1987

September 24-25, 1987: British Society of Oral Medicine meeting, in the Royal College of Surgeons of England, London, England. Contact: Dr. David Wray, British Society of Oral Medicine. Dept. of Oral Medicine and Oral Pathology; High School Yards, Edinburgh, Scotland, EH1 1NR.

OCTOBER/OCTOBRE 1987

October 10-15, 1987: American Dental Association Annual Convention. Las Vegas, Nevada. Contact: ADA, 211 E. Chicago Ave., Chicago, Ill. USA 60611.

October 24-30, 1987: 85th Annual World Dental Congress of the FDI. Buenos Aires, Argentina. Contact: Dr. R.H. Lemme, Congressos Internacionales, SA, Moreno 584-9e, Piso (1091) Buenos Aires, Argentina.

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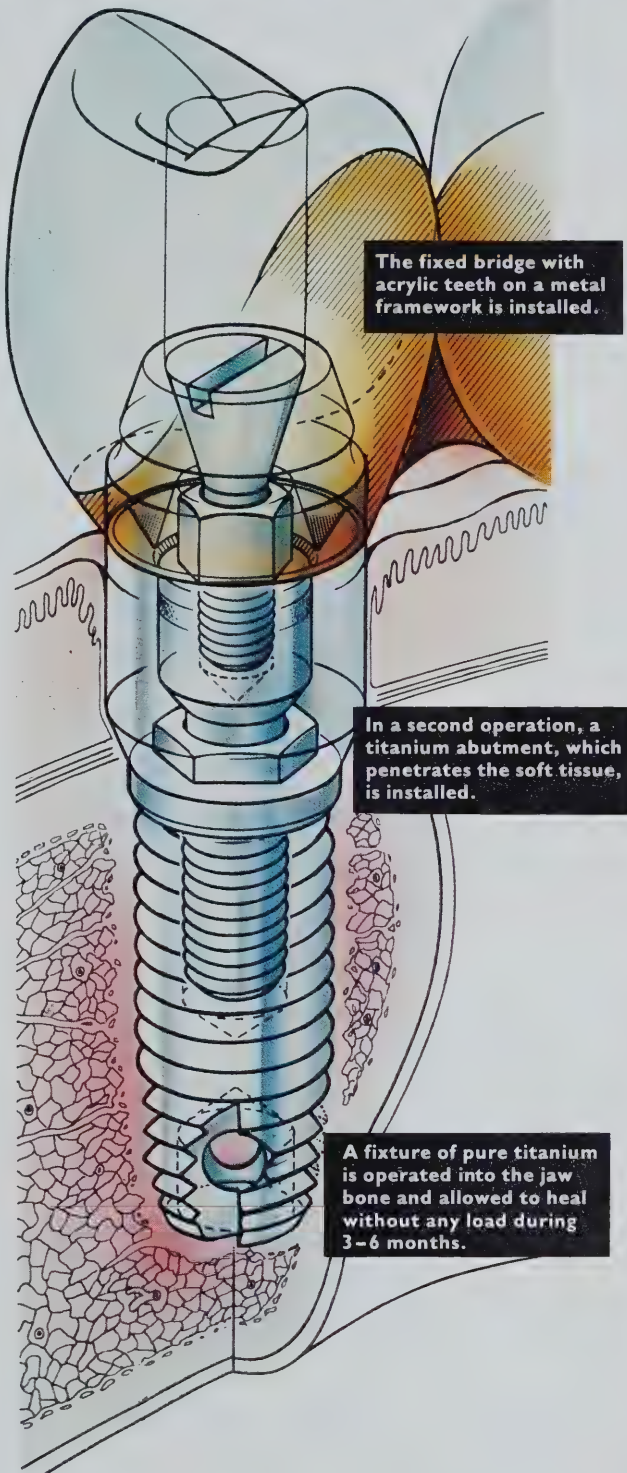
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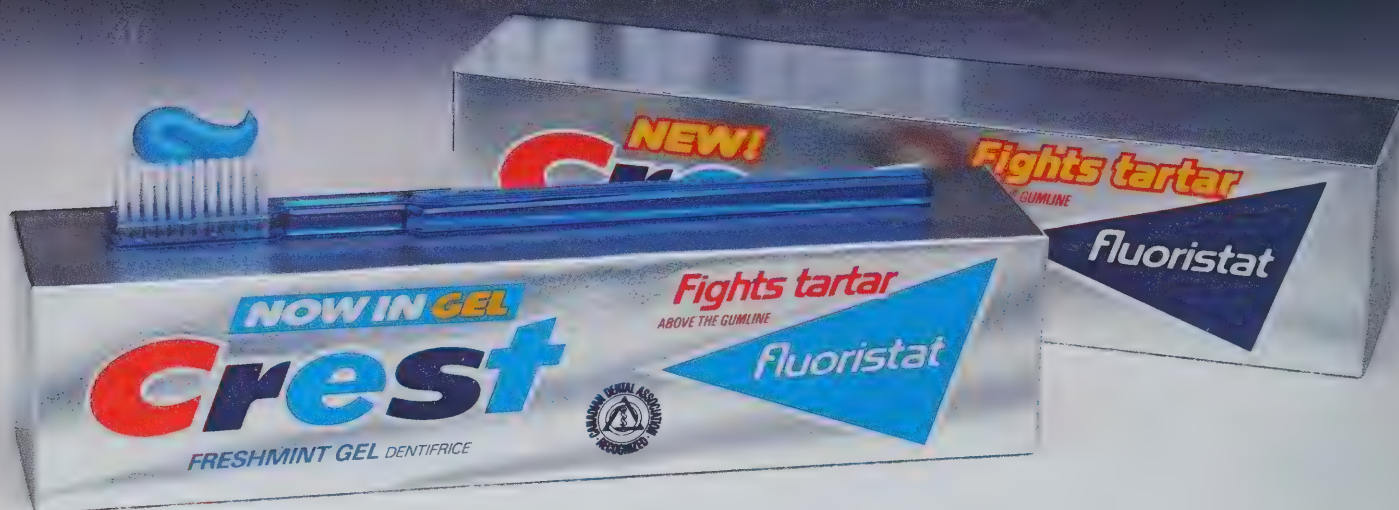
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SMALL INVESTMENT BIG RETURN

Investment seems to be the biggest game in town these days for all kinds of people, professionals included. Yet often the smallest investment of capital, with one of the largest and surest returns is overlooked. That investment is your membership dues for your professional association.

One could argue, I suppose, that in tough economic times, it is difficult to pay all of your professional fees at the same time: fees for membership, fees for continuing education, fees for insurance, fees for licensing. However, all of these investments give the same good value for the money and all are worth a great deal, even those like continuing education or professional dues which are not a requirement for licensing. Or are these just as necessary as your licence or your insurance fees?

Think about it. Would you go to your accountant, your broker or your auto mechanic if you didn't have the confidence that he or she was well informed on tax breaks, the stock market or the best exhaust system? Of course not. Just as these professionals have the obligation to you, the consumer, to keep informed and keep well informed, so you, the professional, have the obligation to both the profession and your patients, to do the same. As a professional, you give the patient value for his/her investment and you expect the same value from your professional association.

The Canadian Dental Association, your national, professional body, is the only one that represents your interests to government, licensing authorities, national certifying agencies and dental organizations of all kinds — in Canada and around the world. For a small investment of membership dues, that vast resource of information which is available to CDA, becomes available to you, the practising dentist.

Two of the most tangible benefits of CDA membership are support and information. As a member of a national body, your dollar supports your profession and, in return, your professional association supports you. How is this accomplished? Just take a look at the list of benefits the CDA has achieved in the past year which support dentistry as a whole. These include the removal of sales tax from dental materials; comprehensive insurance programs at a reasonable cost; ongoing representation of the profession on capitation, manpower and education issues; maintaining high standards and assuring the quality of dental education in this country; helping to educate the public about dentistry, and dentistry about dentistry. Most of all, CDA provides you as a professional with information, information, and more information — which you would not have access to from any other source.

To this end, CDA is investing time, money and manpower for the benefit of every dentist in Canada — but not every dentist is making the investment in CDA. Yet where else can a professional gain support and access to a wealth of information for an annual fee of (at most) \$260?

Professionals today pay more than that annually in leisure club memberships and consumer magazine subscriptions. While both of these are important in maintaining a quality of life, professional membership is important in maintaining a quality of professional life.

While thinking about investing your money in 1987 — think about investing it in CDA. It will become a long term benefit for a small time buck.

*Carolyn Hackland
Editor.*

GUIDELINES FOR THE UTILIZATION OF NITROUS OXIDE-OXYGEN CONSCIOUS SEDATION IN DENTISTRY

The following guidelines for the utilization of nitrous oxide-oxygen for conscious sedation in dentistry were approved by the CDA Board of Governors at the annual meeting in Halifax. The Guidelines were developed by the CDA Council on Health Care and are intended as guidelines only. These were drawn from guidelines prepared by the Royal College of Dental Surgeons of Ontario.

A. Clarification of Terms

In order to reflect the current approved, taught and recognized use of nitrous oxide in dentistry, official literature and communications should refer to the technique as "nitrous oxide and oxygen conscious sedation". The term "analgesia" implies an inappropriate use of this drug.

B. Legal Responsibilities

1. Training in the use of nitrous oxide and oxygen conscious sedation must be mandatory.

C. Course Requirements

1. Courses approved by the CDA must:

- (a) be taught by dentists or physicians with formal training and experience in all areas of anaesthesia and sedation as they apply to dentistry;
- (b) be held in a properly equipped dental office environment or institution in order to permit a significant portion of such a course to deal with candidate participation and utilization of the techniques on patients;
- (c) be followed by a meaningful examination.

D. Training

1. Training is currently available from:

- (a) Canadian Faculties of Dentistry undergraduate and graduate programs.
- (b) Canadian Faculties of Dentistry continuing education programs.

E. Professional Responsibilities

Dentists administering nitrous oxide and oxygen must:

1. Have taken sufficient recognized instruction to;
- (a) conduct a proper evaluation of patient medical status as a determinant of ability to tolerate the drug administration. (A recorded evaluation is mandatory);
- (b) understand the pharmacology (including contraindications, dosage, adverse response, and be prepared to deal with adverse reactions);
- (c) be familiar with the equipment;
2. Accept the responsibility of ensuring proper installation, subsequent functioning, regular disinfection and periodic monitoring of the equipment system.
3. Adhere to the policy that nitrous oxide and oxygen must be administered only by a licensed dentist who should be in the room at all times during its administration. An auxiliary must be present to assist in the treatment room during the administration of nitrous oxide sedation. In the case of female patients, the auxiliary should be female.

4. Ensure that the drug is administered only to those patients who have a legitimate indication for its use and who understand its purpose, its effects, and who consent to its use.

5. Ensure that a patient receives an adequate recovery period in a supervised recovery area following the administration before being allowed to leave the office. When the dentist's judgement indicates, patients should be cautioned against operating machines or driving vehicles immediately after the appointment.

F. Equipment

1. Equipment for nitrous oxide and oxygen conscious sedation must:

- (a) deliver a minimum of 30% oxygen;
- (b) not function unless this minimum flow of 30% oxygen is present in the system;
- (c) be equipped with connectors which will allow adaptation of a full face mask for possible resuscitative procedures.

CFDE EXTENDS FUNDING FOR SUMMER TEACHING INSTITUTE

The Board of Trustees of the Canadian Fund for Dental Education recently announced the award of \$35,000 to the Association of Canadian Faculties of Dentistry to continue their successful Summer Teaching Institute for one more year. For each of the past two summers, 20 faculty members from across Canada have been invited to attend a rigorous workshop which helps to prepare them for their teaching responsibilities. Based on the response of the participants, the continued support of ACFD's House of Delegates, and the desire of many more faculty to attend such workshops, CFDE has generously agreed to assist with the continuation of this national faculty development effort.

Teaching and Administration

The continuation of the award to ACFD includes funding for a second course of study designed specifically for Division Heads, Departmental Chairpersons and Assistant Deans. This administrative workshop will focus on techniques which should be used to facilitate excellence in both teaching and research by the faculty for whom these administrators are responsible. Instructional design, time management, faculty recruitment, computer literacy, and faculty counselling are only several of the topics that will be covered. The "Teaching" and "Administration" Institutes will be run simultaneously, allowing a crossover of faculty and an overall reduction in costs.

(d) be equipped with an acceptable scavenging system.

G. Safety Recommendations

As noted, scavenging devices must be employed for the safety of dental personnel. Nitrous oxide levels in the dental operatory should also be periodically monitored by an appropriate means (such as lapel monitors).

Instructional Design Concept

Both workshops will concentrate on teaching methods which use an "instructional design" concept. This differs from the current practices of most faculty members by requiring the design and construction of the evaluation instruments immediately following the preparation of instructional objectives. Then faculty are asked to carefully consider the best teaching strategy to achieve their objectives and meet their evaluation expectations. Not surprisingly, the strategies currently in use in many classrooms, labs and clinics are not the ones the participants choose by the workshop's end. The need for both faculty and their administrators to try and facilitate the use of better teaching strategies is a central theme in both the Teaching and Management Summer Institute programs.

Follow-up for Part-Time Faculty

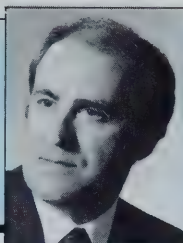
Another feature of the CFDE award is a follow-up program whereby five Faculties are invited each year to develop local programs which will be of benefit to their part-time faculty. In the past, these programs have focused on either clinical/pre-clinical teaching methods or evaluation procedures both of which are aimed at the day to day problems faced by part-time faculty. In the coming year, U.B.C., McGill, Montreal, Laval, and Dalhousie will be eligible for these follow-up grants and plans are now being received for their proposed programs.

A National Initiative

Individual Faculties of Dentistry do not usually have the resources to develop a comprehensive faculty development program for either their faculty or their administrators. The national initiative taken by ACFD to develop such a program is believed to be necessary if faculty are expected to approach their academic responsibilities with a greater degree of insight than that which results from simply having gone through dental school themselves. Few enterprises succeed in today's world without the benefit of prior training or serious in-service programs. Dental education is no different and this national project appears to be addressing a much needed priority in Canadian Faculties of Dentistry.

Application

Next year's Institutes, both Teaching and Administration, will be held from May 30 to June 7, 1987 in London, Ontario. Application forms will be sent later this Fall to all full-time faculty members. Any faculty member or administrator who is interested in attending, should contact their Chairman or Dean as soon as possible so that a place can be reserved.



PRESIDENT'S COLUMN

Dr. John R. Robertson

THE STUDENTS The Profession's Lifeline

How many of us remember well our student days — days full of excitement, anxiety, anticipation and a lot of "butterflies", especially around exam time, during the freshman year or on our first day in the clinic with "real patients"? I do not suppose that things have changed much for the students of today's dental schools.

We in Canada have reason to be proud of our students from our 10 dental schools. Each year we have approximately 500 dental students entering these schools. Four years later many will graduate, go into general practice, the military, residencies, specialties or research. Canadian dentistry is fortunate to have these bright, energetic young professionals to carry on this wonderful profession.

The students of dentistry are the "lifeline" for CDA and for the future of the profession. We must ensure that this continuity between the dentists of today and those of tomorrow is not broken. Dentistry needs new and innovative ideas for this ever changing world. Today's practice of dentistry is quite different from a practice of even 10 or 15 years ago. Students of today's graduating classes are far better prepared technically, psychologically and are receiving a far better education than many of us who graduated years ago.

Fortunately our statistics show that almost all dental students are members of the Canadian Dental Association and many remain lifetime members of our national body. External forces or financial strain often affect whether or not a student, upon graduation, will remain a CDA member. During their student years there are many benefits to being a student member of the CDA. Some of these include a valuable comprehensive insurance package, free access to all of CDA's publications and to the Resource Centre and Medline service, receipt of the CDA Practice Management Manual, free of charge, representation at the annual Students Conference and complimentary registration to the CDA convention. These benefits are expanded after graduation when your CDA membership will continue to provide you with access to all of CDA's services and publications, an insurance program that includes long term disability, malpractice and life insurance packages, as well as the tangible benefits provided by the Dental Awareness Program. One of the intangible benefits of student membership, which continues as well after graduation, is the privilege of belonging to one of the finest professional groups and Associations in Canada. We in Canadian dentistry are proud of our profession and we should work toward instilling this pride into our students.

We at CDA, through our Council on Student Affairs, afford the students a direct input into the political and decision making process of the Association. The students have their own governor who sits with all of the provincial and corporate governors and has an equal vote at the Board table. Students also meet at various seminars across the country, at their Council meeting and at the Students Conference, guided by the member of Executive Council who acts as their liaison. The opinions of students are desired and are given due consideration at all levels of CDA. I can assure you, the students, that your concerns are our concerns.

Recently the CDA held both a Manpower Symposium and a Prelicensure Conference. Students were represented and had input into both of these symposia. We at CDA — the educators and the administration — respect student input. I feel that both the students and the CDA benefitted from the experience provided by these symposia where all concerned had a chance to voice their opinions and meet in discussion.

Students, I have found, are eager to learn of their profession. They have invested a considerable amount of time, study and dollars before they graduate. I believe it behooves the rest of the profession to assist the students in discovering the world of dentistry. There is a lot more to dentistry today than going to the office, seeing the patients and going home. Today the dental profession is also a business and must be run as one.

Changes in tax laws, accounting procedures, patient flow, patient education and public relations are all areas where we must be knowledgeable today. The new graduate, educated in the profession of dentistry, is sometimes unprepared to face the business world of dentistry. Once the doors of university shut behind the new graduate, he or she is usually asking "what now?" Between the university, the CDA, your local society members and confreres, we can help answer that pressing question. We can all help prepare you, the graduate, for the business world, but you must also be aware of and utilize the expertise of lawyers, accountants and other business professionals. Most dentists are not business oriented and most dental schools do not have the time or the resources to give you a business course.

You must, therefore, learn by doing, or by taking advantage of the skills of both the business professional and the experience of your colleagues already in practice. Look especially to your colleagues and your national or provincial organizations for direction, help and leadership.

A good way to gain some experience in the business side of dentistry is to become involved early in dental politics. By joining the school student council, becoming the CDA student representative or the CDA student governor you can gain invaluable experience which will stand you in good stead well into the future. For dentistry to be successful in the difficult years ahead, we will need well informed, interested and dedicated leaders. Those of us already in organized dentistry are counting on you.

I have already met many of you, the students, on student nights and at other meetings, and I continue to hope to talk to as many of you as possible in the coming year. As I mentioned in my introductory column, I will maintain an "open door" policy and will always be receptive to the suggestions and concerns of students, as well as those of the rest of the profession.

Help us to help you through an open and active communication network, for you are our lifeline to the future.

**MESSAGE FROM THE GENERAL
CHAIRMAN OF THE 1987
CDA/ODQ JOINT CONVENTION**



Congrès conjoint de l'Ordre des dentistes du Québec et de
l'Association dentaire canadienne



Joint Convention of the Canadian Dental Association and the Order of
Dentists of Québec

MAY 24-28 MAI

December 1986

DEAR COLLEAGUE: AS ALWAYS . . . A CONVENTION WORTH ATTENDING!

When the Ordre des dentistes du Québec invited the Canadian Dental Association to join LES JOURNÉES DENTAIRE 1987 in Montreal, it felt that a national convention is truly a unique opportunity to reassemble dentists from all the Canadian provinces, coast-to-coast, who all share one common goal: meeting tomorrow's challenge.

This important joint convention will be held in Montreal from May 24-28 and will be divided into two parts: 2 days of preconvention seminars (Sunday, May 24th and Monday, May 25th), followed by a 2½ day convention, including exhibits (Tuesday, May 26th; Wednesday, May 27th and Thursday, May 28th).

Spurred on by the success of the 1984 CDA/ODQ session, the Executive Committee has doubled its efforts to offer you the most complete scientific program ever presented, designed to make your trip to the Montreal Convention Centre a worthwhile event! And to satisfy both our English and French-speaking participants, the program will be offered in both languages . . . Here are some of the lecturers who have confirmed their presence:

Dr. Ernie AMBROSE (Saskatoon)
Ms. Jennifer DE ST-GEORGES (Monte Sereno, CA)
Dr. Frank FAUNCE (Atlanta, GA)
Dr. Robert MORROW (San Antonio, TX)
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Sex and intimacy
Restorative dentistry & fixed prosthodontics
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Oral and maxillo facial surgery
Endodontics

In addition, a hands on course in endodontics will be given by Dr. Bernard Dolansky and a "heart-saver" course, with certification, by Dr. Peter Vaktor.

To give you a "behind the scenes" preview of the convention, we have instituted a monthly column, which will appear in each issue of the CDA Journal, starting in January. The column will be your personal window through which you will see the planning and organizational phases leading up to the meeting. We hope you will enjoy it! And finally, come and succumb to the irresistible city of Montreal that combines the charm of the Old World with the elegance of a truly modern North American city.

On behalf of the Executive Committee, I warmly invite you to join us for . . . RENDEZ-VOUS '87!

Michel Jahjah, D.D.S.
General Chairman

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*French boutiques, Japanese restaurants
... just a normal part of the landscape on
Mountain Street in the centre of Montréal's
entertainment core.*



*The Montréal Museum of Fine Arts on Sherbrooke Street West is one of the city's many
cultural facilities.*



*Restored to its original appearance, Maison du Calvet was once the residence of a trader who
was convicted of working for the invading Americans in 1776. The house now serves for
occasional exhibitions.*



Trees rim the slopes of Mount Royal in this view of a small section of Montréal and the St. Lawrence River.



DID YOU KNOW?

by Dr. Ralph Crawford
Chairman, Membership Committee

DID YOU KNOW: . . . that it was Benjamin Franklin, in 1789, upon writing to a friend about the new United States Constitution, said "Our Constitution is an actual operation; everything appears to promise that it will last; but in this world nothing is certain but death and taxes".

DID YOU KNOW: . . . It is *only* the Canadian Dental Association that influences federal authorities regarding taxation implications in Dentistry! The CDA Taxation Committee was established in 1978 with the mandate "to identify areas where federal taxation or regulations are being unfair or unjust to the individual dentist" and "to liaise with and to formally present submissions to Government authorities to correct these situations." Dr. Robert N. Hicks of West Vancouver, has been Chairman of the Taxation Committee since 1978 — and what a job he is doing! Dr. Hicks works very closely with the consulting firm of McMillan, Binch of Toronto.

DID YOU KNOW: . . . Since 1978 the CDA Taxation Committee has accomplished. . .

- 1980 — after over two years of endeavor, succeeded in having Revenue Canada amend its policy so that self-employed individuals could claim legitimate expenses related to continuing education deductions. Prior to the amendment only tuition fees were deductible. For the first time, during these representations, we saw a Joint Professional Committee where CDA joined forces with the Canadian Medical Association and the Canadian Institute of Chartered Accountants.

- 1980 — Federal Budget reintroduced duty on imported dental materials. Following representation by the Taxation Committee to the Department of Finance, the 1981 Budget removed the duty on most imported dental materials (except amalgam and similar filling materials).

- 1980-1983 — again a "Joint Professional Committee", (dental, medical, law, accountants), headed by CDA, sought changes to Retirement Income Provisions — RRSP — and by May, 1985 were rewarded by major changes particularly in RRSP, increased contribution levels, slated to start in 1988.

- 1982 — the November Budget announced the intention to tax employer contributions to private dental plans. Following a CDA campaign in opposition, the Government abandoned the plan.

- 1983-85 the saga of Revenue Canada Audits/Professional Management Companies! Following an intensive two year activity; innumerable meetings with many, many Government officials, including two Ministers of Revenue, the Department now allows a 15 per cent mark-up on all services (and direct costs) of P.M.C.'s.

- 1984 — the Government announced federal sales tax application to dental impression materials. From information provided by CDA's Taxation Committee, Health and Welfare Canada and the Dental Industry, the sales tax exempt status was reinstated.

- 1986 — September — In a special letter to all dentists, Dr. Hicks reports on the Taxation Committee's endeavors, and successes, in convincing Revenue Canada and the Department of Finance to return to "sales tax-exempt status" on all materials used in dental reconstructive procedures.

- Tomorrow: the Taxation Committee continues. . .

- to dialogue with Revenue Canada re: the application of the Personal Services Business Definition to Professional Management Companies.

- to monitor Tax Reform re: Value Added Tax — Business Added Tax.

- to strive for elimination of 3 per cent reduction to income tax deduction for dental expenses.

- to plan for CDA Taxation Seminars CDA Taxation Letters

- to investigate CDA's use of Trust, Foundations, and Charitable Status.

DID YOU KNOW: You *can't* afford to be without CDA: You Need CDA!!!!

DID YOU KNOW: It costs only 71 Cents per day to belong to the CDA! "Don't go to the office without it"!!

CDA POSITION ON A CERTIFYING BOARD FOR GENERAL DENTISTRY

The following Position Paper was approved by the CDA Board of Governors at the Annual Meeting in Halifax, Nova Scotia, in August 1986.

The Canadian Dental Association opposes the establishment of a Certifying Board for General Dentistry for the following reasons:

National certification of dental practitioners is currently the responsibility of the N.D.E.B. of Canada, a body established under Federal legislation. The NDEB certificate is recognized, for purposes of licensure, in all provinces. The evolution of this national certifying process — a development not paralleled in the United States — represents an accomplishment worth preserving. The need for a separate and distinct certificate from a Certifying Board for General Dentistry is not apparent and could compromise this achievement.

In addition, Undergraduate Dental Education in Canada is in the fortunate position of having current graduates of CDA accredited educational programs recognized for NDEB certification without further examination. Such a process of recognition grants the fullest degree of autonomy and respect to accredited educational programs. A new and separate certifying examination would be a retrograde step.

Preparation of the general dental practitioner remains the primary goal of the undergraduate dental education programs whose graduates are certified by the NDEB in this fashion.

There are a number of groups currently involved with continuing education for general dental practitioners, including CDA, NDEB and provincial licensing authorities working in co-operation with Canadian Faculties of Dentistry. At the request of the NDEB, CDA is currently exploring means of developing continuing education programs linked to the specific needs of individual general dental practitioners concerned with maintenance of professional competence.

The introduction of a certifying board for general dentistry would establish two levels of general practitioners and unnecessarily create disunity in a profession founded on the principle that all dentists must be general practice dentists, regardless of additional specialization in specific fields of interest. Completion of an approved undergraduate educational program in dentistry should continue to be the fundamental prerequisite for recognition as a general dental practitioner. The National Dental Examining Board Certificate should continue to provide

the basis for national portability. An additional certificate is not required to attest to the skills, value or worth of the basic Canadian dental practitioner nor to achieve national portability of general dental practitioners.

NEW FDI PRESIDENT IS FIRST FROM LATIN AMERICA

Dr. Ariel O. Gómez of Argentina has become the new President of the *Fédération Dentaire Internationale* (FDI). He is the first president in FDI's 86-year history to come from Latin America.

Dr. Gómez succeeds Dr. C. Renton Newbury of Australia, who died suddenly last July. Dr. Gómez will serve the unexpired term of the current presidency, which runs until the close of the 75th Annual World Dental Congress in Buenos Aires in October, 1987.

Until recently, the new President was Vice-Rector of the University of Buenos Aires and Dean of its dental faculty. Dr. Gómez has long been active within the FDI. A Vice President since 1981, he has also been prominent in the FDI's Latin American Regional Organization.

He has indicated that he intends to encourage greater involvement by Latin American dentists in the work of the FDI.

Distinguished author

Dr. Gómez is the author of works on dental education, professional care and practice, and on many other topics. He has held various offices in the Argentine Dental Association and the Dental Confederation of Argentina, including the presidency of the latter body from 1973 to 1979.



Dr. Ariel O. Gómez
President of the FDI

HIGH QUALITY PRESENTATIONS AT FORENSIC SCIENCE SESSIONS

The Canadian Society of Forensic Sciences continues to get congratulatory messages on the quality of presentations during scientific sessions at the annual meeting of that body in Niagara Falls, Ontario, September 15-19.

Ten presentations were made during the Odontology session, by speakers of international repute.

Themes

Dr. Haskell Askin, Dental Consultant to the Philadelphia Medical Examiner's Office spoke on "Radiographic Techniques in Dental Identification."

Portable dental X-ray machinery and the role of dental radiography in the dental identification of unknown human remains was presented. Cases illustrated the recognition, collection and processing of dental evidence, radiographic techniques, tooth development as an indicator for age determination, and compatible inconsistencies in the comparison of antemortem with postmortem records.

Dr. Stuart L. Fischman of the State University of New York, Buffalo, gave the presentation — "Over the Falls — With Teeth."

Dr. Fischman pointed out that identification of remains is an important function of the forensic dentist. Because of the proximity to Niagara Falls, forensic dentists in Western New York State and Southern Ontario are frequently called upon to perform such identification.

Several challenges are presented by examination of remains recovered from the Niagara Falls area. In addition to decomposition by immersion in water, the bodies are often traumatized by passing over the Falls and may be mutilated by passage through power generating turbines and/or ship propellers. Because of large ice jams on the lower Niagara River, bodies may remain submerged during winter and spring months. River and lake currents may result in bodies being recovered on the southern shoreline of Lake Ontario, several months after disappearing in the Niagara Falls area.

Cases were discussed illustrating these points. Dr. Fischman noted that the close cooperation of American and Canadian forensic dentists is essential to accurate and prompt identification.

Dr. Philip L. Samis of Montreal, presented "Identify Update 1986." The first concept for dental micro-ID was presented in Zurich, Switzerland in September, 1976, by Dr. Samis, at the Seventh International Meeting of Forensic Sciences.

In his presentation in Niagara Falls, Dr. Samis presented a review of micro-disc

ID, covered current developments and demonstrated new equipment for in-office ID disc fabrication, examined the need for a central registry, examined the legality of a micro-disc ID, presented inside information on the proposed American Dental Association Dental registry and how the program was fumbled.

Dr. Stanley Kogon of the Faculty of Dentistry, University of Western Ontario, gave a presentation on "Bitemarks in Food — A Court Case." He spoke of a case in which the essential evidence was a bite mark in cheese.

Also in his presentation, Dr. Kogon explained the collection, management and methods used in the courtroom presentation. He also introduced current research in selection of optimum material for casting impressions in foodstuffs.

Dr. Stephen I. Ahing of the University of Manitoba, led a session on "Child Abuse and Neglect Syndrome." He explained that the term "child abuse and neglect syndrome" (CANS) has broadened the definition of child abuse to include nine types. They are, in descending order of frequency: physical abuse, educational neglect, emotional neglect, health care neglect, physical neglect, sexual abuse, nutritional neglect, intentional poisoning and safety neglect. Consequently, the guidelines for the reporting of child abuse have expanded. The implications for the dentist were discussed from an oral pathology perspective in terms of the differential diagnosis of CANS, documentation, patient management and socio-legal issues.

"Air Canada — Fire Over Cincinnati," was the topic of the presentation by Dr. Curtis A. Mertz, a Diplomate of the American Board of Forensic Odontology, from Ashtabula, Ohio.

Dr. Mertz stated that aircraft, both on business and commercial flights, have problems while in flight. Fortunately few result in disasters. The Air Canada Flight 797 encountered a fire while aloft, which resulted in the loss of 23 lives and injury to a further 23 passengers. The injured were promptly hospitalized. The dead were recovered from the burned cabin and, with good cooperation of Air Canada and the Canadian Government, the local Kentucky Dental ID team were able to identify the remains and promptly ship them for burial.

A discussion followed on the subject of private and business airline crashes which involved multiple nationalities and presented some interesting problems.

Other presentations

Other presentations during the Odontology session were: "Alcohol and Drugs Determination on Bite Marks," by Dr.

Araceli Ortiz, L. Ferrer and P. Rechani, PhD, all of the University of Puerto Rico, San Juan; "Oro-facial Manifestations of Chronic Alcoholism", also by Dr. Araceli Ortiz and J.M. Ramos, of the University of Puerto Rico; "Use of Pulpal and Root Canal Morphology in Human Identification and in a Cremation Victim," by Dr. Jeffrey R. Burkes, of New York City; "Anthropology and Odontology", by Peggy Caldwell of the Smithsonian Institute; "Identification of Joseph Mengele", by Dr. Lowell J. Levine, New York City; "Cremation: Effects on Hard Tissues and Body Prosthetic Appliances", by Dr. Wilbur B. Richie, Golden, Colorado, and "Maxillo-facial Injuries in Aircraft Accidents", by Wing Commander Hill of the Royal Air Force, England. (The latter was a paper read by Dr. K.F. Pownall, Registrar of the Royal College of Dental Surgeons of Ontario).

Dr. George Burgman

George E. Burgman, DDS, President of the Canadian Society of Forensic Science and Chairman of the Odontology Section was moderator of a plenary session on "Aviation Disasters."

Captain Ron Macdonald of the Canadian Airline Pilots' Association delivered a preamble and led a discussion following the screening of a film documentary on the crash of an Air New Zealand DC 10 into Mount Erebus in the Antarctic. The film narrates the work of the New Zealand recovery and identification team. During the discussion the findings of the inquiry into the causes of the accident were summarized, including the chain of events leading to it.

One of the highlights was a presentation by Mr. J. Garstang, Mechanical Failure

Analyst, Engineering Branch, Canadian Aviation Safety Board, who spoke on "Air India 747 Crash into the North Atlantic." Mr. Garstang was an on-site investigator who assisted in the search and recovery of the wreckage, using sonar and submersible devices. Using this crash investigation and others, he illustrated the overlap of his work with that of many other forensic science disciplines.

Scientific presentations were also made in the fields of biology, chemistry, engineering, toxicology and questioned documents.

UNIVERSITY OF ALBERTA RECEIVES MAJOR RESEARCH GRANT

Kellogg Salada (Canada) Inc. and the Dairy Bureau of Canada have granted more than \$200,000 to the University of Alberta for baseline research of older Canadians living in Alberta.

The initial grant of more than \$200,000 will be co-ordinated under the direction of Dr. J.A. Hargreaves, Professor and Director of Graduate Studies and Research in the Faculty of Dentistry in association with Dr. G.W. Thompson, Dean of the Faculty of Dentistry, Dr. Elizabeth Donald, Faculty of Home Economics and Dr. T.R. Overton, Faculty of Medicine.

Kellogg Salada (Canada) has provided more than \$150,000.00 during the past seven years to Dr. J.A. Hargreaves and Dr. G.W. Thompson to develop a computerized nutrient data base and to examine profiles of and associations between dental conditions and dietary patterns in Canadian school children. This data base at the University of Alberta is considered to be one of the most up-to-date and sophisticated nutrient assessment tools available.

The need to have accurate information on the diet and nutrition of the older person in Canada is important and this new project was designed in a unique way to look at dental and general health, specifically to see if oral health affects dietary choice and if diet contributes to dental disease; to assess diet and nutrition of the older person, specifically looking at several key nutrients including folacin, vitamin B₁₂, vitamin D metabolites, calcium and phosphorus and to interrelate dental and nutritional findings with bone loss.

Bone loss, as associated with osteoporosis, is an important cause of human suffering with a huge economic cost in Canada. The project involves the use of research techniques and technology developed by Dr. Overton's bone research group to examine bone loss and is a key factor in the interdisciplinary nature of the research study.

The Dairy Bureau has allocated \$150,000.00 of the total grant for the bone density studies under the supervision of Dr. Overton and Kellogg Salada (Canada) has given monies for the dental, medical and nutritional research studies.

Dr. Elizabeth Donald is supervising the nutrition research and has commenced the field studies. She has a team of graduates from the Department of Foods and Nutrition to aid in accurately collecting dietary intake data.

The sample of people being investigated totals 150, 75 men and 75 women between 65 and 74 years of age.

The recruitment of subjects has been undertaken with the co-operation of the Society for the Retired and Semi-Retired in Edmonton, Alberta in conjunction with the Medical Officer of Health for the City of Edmonton.

NEW HEPATITIS B VACCINE APPROVED IN THE U.S.

A new hepatitis B vaccine, made from yeast cells, has been approved by the United States Food and Drug Administration (FDA).

Recombivax HB, the first genetically engineered vaccine allowed for use in humans (in the U.S.) is made from yeast cells into which the gene for production of the hepatitis B surface antigen has been introduced.

Edward Penhoet PhD, president of Chiron Corp. of California explained that "by inserting the relevant gene — the code for the surface protein (antigen) — the yeast cell is tricked into making hepatitis B surface antigen."

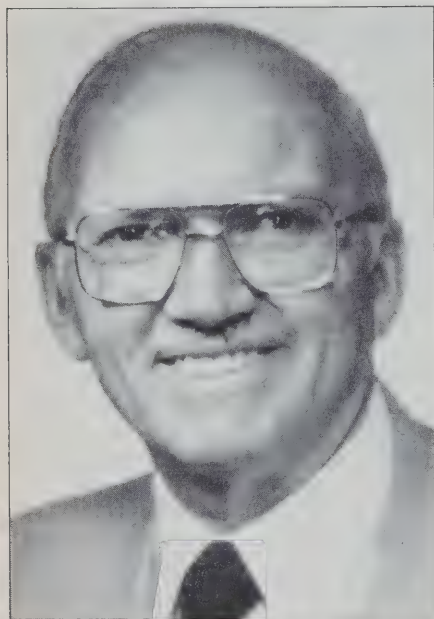
During the process of purifying the resulting vaccine, all yeast protein is removed, so that people with yeast allergies should not be concerned, Dr. Penhoet said. The surface antigen is not infectious but it does trigger a protective immune response to the hepatitis B virus.

The Chiron firm developed this process for genetically engineering the vaccine and has licensed the manufacturing and distribution to Merck Sharp & Dohme of West Point, Pennsylvania. This firm already manufactures the Heptavax B vaccine, the only hepatitis B vaccine currently on the market.

Available early in 1987

Arlene McLean, PhD, senior director of special projects for Merck Sharp & Dohme's medical services department, says "the new vaccine should be available (in the U.S.) in the first quarter of 1987."

The firm will continue to produce the old vaccine, Dr. McLean said, because "we



Dr. George E. Burgman

don't know whether there will be general acceptance of the new vaccine, or if people will stick with the plasma-derived vaccine.

"The spectrum of reactions in the clinical studies show that reaction to the new vaccine is very similar to what we saw with the plasma-derived vaccine," she continued. She explained that those reactions include soreness at the injection site, fever, headache, malaise and nausea. "These reactions occur in a small percentage of people receiving the vaccine."

Research on the project began eight years ago and during the course of development, the new vaccine was tested in clinical trials on about 3,000 people. The early developmental work was carried out at the University of California, San Francisco.

Fear of AIDS

The Heptavax B vaccine, which has been available since 1982 in the U.S., and soon afterwards in Canada, is derived from human plasma. It was made available first to those groups at high risk of contracting hepatitis B — including physicians, surgeons, dentists and dental personnel, and dialysis patients.

Initially, however, there were some apprehensions about the safety of the vaccine. Because homosexuals are among those at high risk to hepatitis B, that group was a source for the plasma used in the production of the vaccine. Some people, therefore, were reluctant to receive the vaccine because of the fear that they might get the AIDS virus from the high risk homosexuals.

However, U.S. government health agencies closely scrutinized the Heptavax B vaccine. The deactivation steps that were taken during the manufacturing process have, to the satisfaction of all concerned, been effective in deactivating any known human infectious agent, including the AIDS virus.

Same cost

It has been reported that the new vaccine is similar to the now-familiar Heptavax B, will cost about the same, and will be administered in a three-dose regimen of intramuscular injections.

The U.S. Centres for Disease Control (CDC) has again recommended that all persons in high risk categories receive the new vaccine. It was noted that cost is a factor and if it is possible that the price drops at a later date, then the recommendation would be expanded to a larger group of people.

Dr. McLean says her firm continues to be concerned about the public health aspect. "We're trying to improve yields and are working with the Centres for Disease Control. The number of reported cases of hepatitis B has yet to drop."

AD LIB

by Cuspid

CHOOSING YOUR OFFICE STAFF

It's easy to hire secretaries, receptionists and dental assistants. Right? Just put an ad in the local paper . . . and along come all these paragons of virtue, patience, precision and personality.

Well, it doesn't always work out *quite* like that. First of all, if you have a vacancy on your staff — or are just starting out in practice — you'll probably find it easy enough to assess technical skill among applicants. But what about the intangibles? What about compatibility? You wouldn't, after all, select a professional partner with whom you enjoyed no rapport. Why then use anything less than the highest standard to bring in ancillary staff whose impact on your practice may be just as great?

The time to tell all (and to ask all) is at the interview with a prospective employee. Describe in detail the precise nature of the job, the hours, pay, fringe benefits, vacation arrangements; for the successful applicant all of this might profitably be written into a formal contract. In return, you should enquire about experience, references, skills, interests and career goals, while attempting to discern the applicant's personal suitability to fit in with existing staff and deal pleasantly and intelligently with patients.

This is one area, in fact, where your staff can make you or break you — the latter perhaps unwittingly as a result of well-meant attempts to protect you from a variety of real or imagined evils such as overwork or trivia.

In many offices, the person responsible for handling the telephone assumes a proprietary, sometimes parental protectiveness over the dentist, managing to convey the impression that all would be fine in the office were it not for all these bothersome patients.

The solution is to hire a receptionist or secretary who can bring warmth, interest, briskness, judgement and initiative to the telephone with her — someone who will smooth the patient's journey to your office, rather than obstruct it.

Really that is the major part of the answer to all of your staff problems — choosing the right people to work with you in the first place.

However, after you've hired them, what about *their* contribution to your well-being? Are you satisfied with their performance? If not, say so. If the point you want to make is a general one, use the staff meetings to say, "By the way, you'll notice in our written agreements that office hours begin at 9.00 a.m., not 9.30", or whatever the problem is. If the area of dissatisfaction applies to only one person, call that employee aside alone and broach the subject.

If you've done your hiring properly in the first place, such a review should be conducted in a positive sense for the benefit of you, your team — and your patients.

Isaac Weisfuse, MD, a medical epidemiologist in the hepatitis branch of the CDC has also confirmed the safety of the plasma-derived vaccine. "We feel it is completely safe. Obviously, many questions have been raised about safety and we hope that the new vaccine will allay fears, even though we don't think that plasma-derived vaccine was a problem. If more people get the new vaccine, then it's a worthwhile thing," he said.

The Chiron firm is applying the methods it used in developing Recombivax HB in its efforts to discover vaccines against herpes, AIDS and other forms of hepatitis. Dr. Penhoet revealed that "vaccines against hepatitis A and non-A, non-B hepatitis, are in progress now."

Canadian approval

Merck Sharp & Dohme has applied to the Health Protection Branch of Health and Wel-

fare Canada for approval of Recombivax HB. Dr. Jean Mailloux, that firm's Medical Director, said he was "optimistic that the Health Protection Branch will give its approval by late this year or early in 1987. It should follow very closely the U.S. company pattern."

The vaccine itself is not yet available either in the U.S. or Canada. An official of the firm in Montreal advised the Journal that a stock is being built up before it is released, because the firm anticipates a demand and wishes to be in a position to meet that demand without delays.

It will not be produced in Canada, the Journal learned. All the vaccine for use in Canada will be produced at the Philadelphia area production facility.

Dr. Mailloux said there never really was a basis for concern about the plasma-derived Heptavax B vaccine. "I think that scare has almost faded away."

COLUMBIA U. TO ESTABLISH DENTAL RESEARCH CENTRE

The Columbia-Presbyterian Medical Center in New York City is proceeding with plans to establish a Center for Clinical Research in Dentistry.

According to Allan J. Formicola, DDS, director of the Presbyterian Hospital's Dental Service and Dean of Columbia University's School of Dental and Oral Surgery, the new Center will provide state-of-the-art equipment needed by researchers to accelerate the progress they have already made in dental research; an independent facility in which research patients would be studied; investigative teams prepared to apply new laboratory techniques toward solving clinical problems and developing new approaches to the prevention of oral disease; a trained clinical and statistical support staff; a locus for training activities for hygienists and dentists, and, for recent graduates, who are interested in academic careers and seek advanced clinical training as well as research training.

Research activities in the Centre, which will be directed by Irwin D. Mandel, DDS, professor of dentistry and attending dentist,

will focus on preventing dental caries by augmenting natural protective mechanisms; development of dentally improved foods, such as low cariogenic snack foods and low retentive foods for the elderly; the impact of nutrition and topical supplements on periodontal disease; antibacterial therapies in caries and periodontal disease; diagnostic use of salivary chemistry and analysis of gingival crevicular fluid; development and testing of new therapeutic agents to combat dental pain; and development and evaluation of new filling materials, implant devices and techniques.

The Center will also be involved indirectly in studies of oral cancer, geriatrics and growth and development problems, by providing both physical and technical resources.

"A Center for Clinical Research in Dentistry can call on a growing group of expert clinicians with a critical sense, who want to be part of investigative teams. Industry and the public can profit from partnerships with such teams," Dr. Mandel said.

A total of \$2.5 million will be needed to finance the establishment of the Centre, officials have stated.

ACFD/CFDE SUMMER TEACHING INSTITUTE A SUCCESS

During the last two weeks of June 1986, participants from eight of the 10 Canadian Faculties of Dentistry gathered at the

University of Western Ontario for the second ACFD/CFDE Summer Teaching Institute. A great deal of new information and much fellowship was enjoyed by all, as can be seen in the accompanying photo. The caption on the T-Shirts reads "I Survived the 1986 Summer Teaching Institute."



Back Row: Dr. Jay Hoover (Sask), Dr. Jack Gerrow (Dal), Dr. Garnet Pakota (Sask), Dr. Len Chumak (UWO), Dr. Wayne Tunis (Alta), Dr. Bill MacInnis (Dal), Dr. Ric Devon (Sask), Dr. Bill Lobb (Alta), Dr. Haig Baltadjan (Montreal) **Middle Row:** Dr. Bruce Squires (STI Director), Mrs. Linda Murray (Seneca College), Terry Mitchell (Dal), Dr. Benoit Soucy (Laval), Dr. Sam Borden (Man), Dr. Stephane Schwartz (McGill), Giselle Johnson (John Abbott), Dr. Patti Ling (Man) **Front Row:** Dr. Bob Brandon (UWO), Dr. Richard Lewis (STI Faculty), Dr. John Eisner (STI Faculty and Co-ordinator)

Correction In the November 1986 issue of the Journal (Vol. 52, No. 11) on page 887, Dr. Dennis Wells was incorrectly identified in a photograph as Dr. Kevin Roach. Apologies to both Dr. Wells and Dr. Roach are extended by Journal staff.

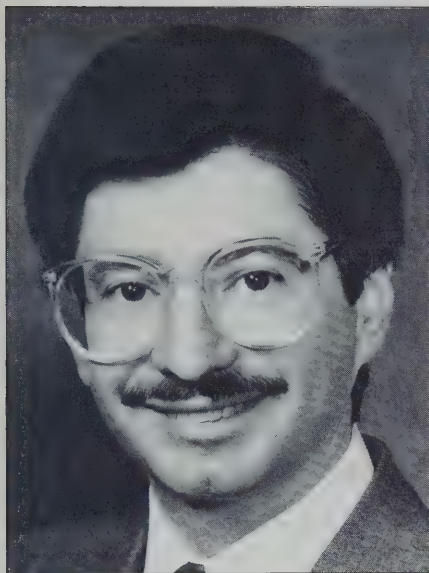
*Loss of
Coordination
Double Vision
Loss of Balance*

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OF
MULTIPLE
SCLEROSIS.
STOP MS BEFORE
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Briefly



Dr. Herb H. Borsuk

Dr. Herb Borsuk of Westmount, Québec, was named President of the Canadian Academy of Endodontics at that body's annual meeting in Vancouver in late September.

The President-Elect is Dr. William Christie of Winnipeg, the Treasurer — Dr. Lorne Chapnick, of Toronto and Dr. John Phillips of Oshawa, Ontario is the Executive Secretary.

Dr. Borsuk graduated from McGill University in 1972, and received certification in Endodontics and an MSc in Dentistry at Boston University.

He is presently an Assistant Professor at McGill University's Faculty of Dentistry and Director of the Division of Endodontics.

Dr. Borsuk is a Fellow of the Royal College of Dentists (Canada) and Examiner to the Royal College.

He conducts a private endodontic practice in Montréal.

An international symposium, featuring 12 of the world's experts on temporomandibular joint dysfunction will be held in Chicago, January 30 – February 1, 1987.

The symposium will also feature an historic working session on TMJ which will begin to establish working principles, and procedures to analyse, predict and explain the biological nature, indications and consequences of temporomandibular joint disorders.

The speakers are as follows: Dr. Donald

Enlow (USA); Dr. Christian Stohler (Switzerland); Mariana Rocabado (Chile); Dr. Thomas Rakosi (Germany); Dr. Bernard Jankleson (USA); Dr. Wolfgang Heiser (Austria); Dr. Jeffrey Okason (USA); Dr. David Blaustein (USA) and Dr. Henri Petit (France.)

The symposium is being held at Chicago's Hyatt Hotel. More information can be obtained from the Program Chairman at 606-277-7005.

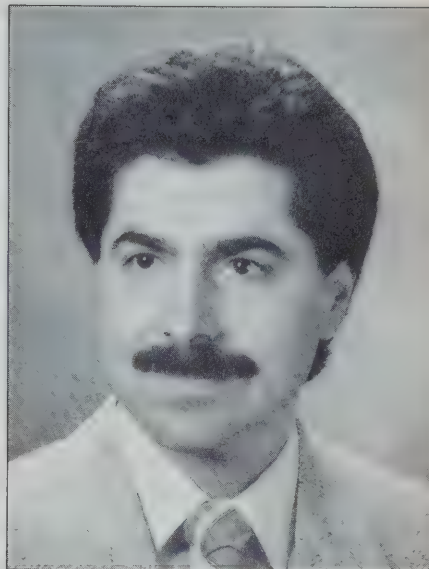
The Canadian Academy of Oral Radiology held its 15th annual scientific session in Halifax, Nova Scotia this summer in conjunction with the CDA Convention.

Twelve members of the CAOR and three from the American Academy of Dental Radiology (AADR) heard abstracts on such topics as radiographic technique, radiology education and histologic changes related to radiographic findings. Members also presented and debated a variety of clinicopathologic cases.

Dr. John Lovas, who was a guest of the Academy, and is a well known oral pathologist, interpreted histopathologic findings in several cases.

Participants also enjoyed several social events including a reception hosted by Siemens' Electric and a luncheon sponsored by Kodak Canada. Delegates were also treated to a Texas-style barbeque at the home of Dr. and Mrs. Ken Abramovitch of Halifax. The food, which was reported to be excellent, was prepared by Mr. and Mrs. W. Dubell of San Antonio, Texas.

The 1987 session of the CAOR will be held in Toronto in June, under the guidance of local arrangements chairman, Dr. Michael Pharoah of the University of Toronto.



Dr. Marvin H. Steinberg

Dr. Marvin H. Steinberg, President of the Alpha Omega-Mount Royal Dental Society, was recently elected President of the Federation of Dental Societies of Greater Montreal Inc.

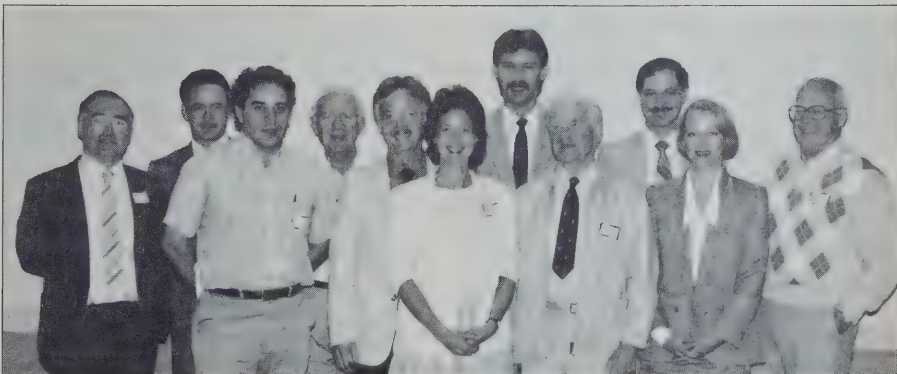
The Federation is responsible for providing continuing education programs for the dentists of the area.

Other officers elected include Drs. Fred Muroff, First Vice President, Pierre Rodrigue, Second Vice President and Michael Tenenbaum, Secretary.

Dr. Oleg S. Kopytov, of Montreal Quebec is the new President of the Canadian Association of Orthodontists.

A graduate of McGill University Faculty of Dentistry, Dr. Kopytov received his specialty training in orthodontics from the University of Minnesota. He is a past-

Photo: Dr. John Lovas



Back row from left: Dr. Michael Pharoah, Dr. John Reid, Dr. Dale Miles, Dr. Garnet Pakota, Dr. Ken Abramovitch. Front row from left: Dr. Colin Price, Dr. David Chernin, Dr. Margot Van Dis, Dr. Guy Poyton, Dr. Susanne Tottstrup. Photographer: Dr. John Lovas.



Dr. Oleg S. Kopytov

President of the Quebec Association of Orthodontists and is an assistant professor in orthodontics at McGill University.

Dr. Wayne Barro was elected President-elect, at the same time. Dr. Barro is a graduate of Dalhousie University, and received his orthodontic specialty training at the University of Western Ontario. Dr. Barro, who is from Dartmouth, Nova Scotia, is Chairman of the orthodontics department at Dalhousie.

Dr. James H.P. Main, a noted Canadian oral pathologist has recently been elected President-elect of the International Association of Oral Pathologists.

Dr. Main, who is associated with the University of Toronto, Faculty of Dentistry, was elected to the position at the general meeting of the Association which took place in September in Edinburgh, Scotland.



Dr. James H.P. Main

The remainder of the new Council of the Association were also elected. These were Drs. I. van der Waal, Free University of Amsterdam, President; B.G. Radden, University of Melbourne, Past-President; and W. Binnie, Baylor University, Secretary-Treasurer.

The next biennial congress of the Association will be held in May 1988, in Philadelphia, Pennsylvania.

Fiscal woes and natural disasters have made life difficult for the Mexican Dental Association.

The Association has made an appeal for books and educational materials to restock its library and store. The appeal is for support in a project to rebuild and update the library which had been badly neglected for several years.

The project has faced severe setbacks in recent months, because of Mexico's very critical economic situation and the severe earthquakes, which destroyed many supplies.

A recent FDI Newsletter cites the Mexican Association's project as vital for the better care of patients and the advancement of dentistry in that country.

Editor's note: The mailing address for the Mexican Association is: *Asociación Dental Mexicana, Ezquiel Montes No. 92, Mexico 4, D.F.*

In response to inquiries by CDA members, regarding the acquisition of Legal Expense Insurance, the question was placed before CDSPI.

According to the CDSPI insurance broker, there are currently no insurance companies which offer Legal Expense Insurance on an individual basis. That is, in the current marketplace, no dentist could obtain Legal Expense Insurance individually. One suggestion that CDSPI had, however, was for each individual dentist who wished to obtain this type of coverage to approach his or her own insurance broker.

"Don't leave home without it" may soon be the cry of dental patients in five Canadian provinces.

American Express Canada Inc. recently announced that dentists in British Columbia, Alberta, Manitoba, Quebec and Nova Scotia have the option now of accepting the American Express Card in payment for dental services. Gregory Gray, Vice President of National Account Development and Sales for American Express Canada said the use of the card will simplify billing and improve cash flow for a dental practitioner. Other benefits might also include reduced receivables, reduced billing expenses and collection efforts and convenience for patients.

There are no start-up costs to the dentist, and a \$100 limit before the dentist must call for authorization.

CDA RETIREMENT SAVINGS PLAN

Unit values: (Funds are valued weekly)

Fund	October 31, 1986	September 26, 1986
Fixed Income Fund	54.20768	53.82355
Common Stock Fund	119.81349	116.72381
Money Market Fund	36.02739	35.76248
Balanced Fund	22.59761	22.24957

Interest rates:

Guaranteed Fund

Term	October 31, 1986	September 29, 1986
1 yr	8.70%	8.55%
2 yr	9.10%	9.00%
3 yr	9.75%	9.70%
4 yr	9.85%	9.85%
5 yr	10.25%	10.25%

(*rates subject to change without notice.)

Total Assets (Market value) of the Plan as of:

October 31, 1986	September 29, 1986
\$64,377,228	\$62,154,332

For further information:

Write: Canadian Dental Service Plans Inc.
Retirement Services Department
Suite 600, 2 Lansing Square
Willowdale, Ontario M2J 4Z3

or phone, toll-free:

Western and Atlantic Canada and Ontario Area Code 807 only	1-800-268-5418
Quebec and Ontario, (except Area Code 807)	1-800-268-3411
Metro Toronto Area	497-7117

DENTAL AWARENESS PROGRAM UPDATE



ONTARIO'S BOLD STRIDES IN CONSUMER EDUCATION

January 1987 will usher in a new era in provincial dental awareness activity. The Ontario Dental Association is leading the way — by launching a dynamic, \$500,000 public awareness and information initiative, designed to work with the Dental Awareness Program.

A New Approach

ODA's campaign demonstrates a new approach to CDA-provincial collaboration.

All the program materials and resources will be developed in close cooperation with the Dental Awareness Program — and will be designed to be consistent with and complementary to DAP's **Good for Life** materials. They will bear the **Good for Life** symbol as well as the ODA identity — adding weight, credibility and continuity to the program. Furthermore, all materials will be made available to any provincial association interested in working with DAP on similar programs.

The Message

The thrust of the ODA program is consumer education. According to the CDA's Gallup Poll on dental attitudes and behaviour, concern about the cost of dental care is a widespread problem. Cost is seen as a serious barrier to getting necessary professional care — not only for Ontarians but for Canadians everywhere. With this bold and ambitious effort, the ODA has tackled the problem head-on. The ODA's program alerts the public to the issue — and then comes through with practical, reliable information about how best to use professional dental services. And the message is that dentistry cares.

The Means

Ontario is getting the message out in four major ways. They are:

- **Consumer print information.** Provides valuable advice on consumer-related topics — such as why it's important to choose the right dentist, what to look for in an insurance plan, how best to manage your dental dollar, and other topics of interest to consumers. The ODA will get booklets out to the public free — by mailing them directly in response to consumers' requests, and by distributing them through dental offices.

- **Magazine advertising.** Not only to highlight consumer dental-health issues, but also to underline dentistry's role in helping the public manage them effectively. Full-page ads in *Maclean's*, *Chatelaine*, *Toronto Life*, and other major magazines will promote the consumer information booklet and will refer readers to their dentists or to the ODA for free copies.

- **Dental-office promotion.** In early January, each participating ODA member dentist will receive:

- Poster for reception-area display.
- Supply of 150 consumer booklets.
- Special form letters to distribute to patients.
- Guide to help dentists use the materials effectively.

- **Media-relations campaign.** ODA will generate province-wide media coverage of consumer dental-health issues by:

- Direct contact with major Toronto print, radio, and television outlets.
- Helping interested local dental societies throughout Ontario reach all media in their regions.
- Syndicating a series of practical consumer columns to dailies and weeklies over a period of several months.

The Ontario Dental Association hopes that this all-out program to educate the public about consumer issues will not only demonstrate concern for patients but will also help protect private-practice dentistry from threats such as capitation. Says ODA president Dr. Bernie Dolansky, "We're trying to educate the public so they'll know what good dental care means — and they'll know when they're being presented with an inferior delivery system."

With this exciting program, ODA has boldly taken the lead in two different fields. The program has broken new ground in consumer education. And it's also provided organized dentistry across Canada with an unprecedented example of how provincial associations can take advantage of DAP's resources and expertise to launch effective and aggressive communication.

ORDER "EVERY ADULT. . ." WHILE SUPPLIES LAST!

You can now order copies of "What Every Adult Should Know About Dental Health" directly from CDA. Thanks to Oral-B's generous sponsorship, we can ship you additional copies of this lively, innovative pamphlet at a very reasonable price.

For CDA members, the price is \$7.50 per 100 copies. The non-members' price is \$9.00 per 100 copies. For both members and non-members, there is an additional postage and handling charge of \$2.50 per 100 copies. "Every Adult" is available in English and French; please specify quantities of each when ordering.

To order, send your name, address, CDA membership number, quantities required, and a cheque or money order to:

CDA Order Section
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

For easier, faster
office work,
twice a year...

We help them
with their homework,
twice a day.



Introducing new Colgate Mint Toothpaste.
It not only reduces tooth decay, it helps inhibit
supragingival calculus buildup between prophylaxes.^{1,2}

Two important benefits in one new formula.

Colgate has developed a new cavity-fighting fluoride formula dentifrice which also contains a soluble pyrophosphate. This safe, non-abrasive ingredient interferes with the build-up of supragingival calculus. Clinical trials^{1,2} have shown a 35.5 % and 44.2 % reduction in calculus formation in patients tested. The practical results of such significant calculus reductions are obvious at subsequent appointments: easier prophylaxes for both you and your patients.

Colgate Mint Toothpaste is an important advance in oral hygiene for patients who require calculus removal. Patients who develop hard, unsightly calculus will benefit from your recommendation to use Colgate Mint Toothpaste, in the gold box. They should begin to use it immediately following your scaling procedure, to enable the formula to work on freshly cleaned tooth surfaces. Of course those patients in whom calculus is not a problem will continue to benefit from regular use of Colgate's Regular, Winterfresh, or Gel flavours.



One more step to better oral hygiene for your patients.



"Colgate Toothpaste contains sodium fluoride which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care." Canadian Dental Association.

1. Schiff, T.G.: "The effect on calculus deposits of a dentifrice containing soluble pyrophosphate and sodium fluoride: a three month clinical study." *J. Clin. Prev. Dent.*, (June, 1986).
2. Lobene, R.R.: "A clinical study of the anti-calculus effect of a dentifrice containing soluble pyrophosphate." *J. Clin. Prev. Dent.*, (June, 1986).

Resource Centre de documentation

MERCURY UPDATE

LE MERCURE: DERNIERS TITRES

1. Abraham, J.E., Svare, C.W. and Frank, C.W. *The effect of dental amalgam restorations on blood mercury levels*. Journal of Dental Research, v. 63, no. 1, January 1984.

Abstract:

Mercury levels in blood and in mouth air before and after chewing were measured in 47 persons with, and 14 persons without, dental amalgam restorations. Questionnaires relating to exogenous sources of mercury exposure were administered to both groups. Differences in the mouth air mercury levels before and after chewing were statistically significant in the group with amalgams, but not in the group without amalgams. Analysis of the data from the questionnaires indicated that little or no exogenous exposure to mercury occurred among the two groups. Blood mercury concentrations were positively correlated with the number and surface area of amalgam restorations and were significantly lower in the group without dental amalgams.

2. Brodsky, J.B. and others. *Occupational exposure to mercury in dentistry and pregnancy outcome*. Journal of the American Dental Association, v. 111, no. 5, November 1985, pp. 770-780.

Abstract:

A questionnaire was mailed to dentists and dental assistants requesting information about work, health, and reproductive history. Statistical analysis of the data indicated that there was no increased rate of spontaneous abortions or congenital abnormalities in the children of men and women who were exposed to low versus high levels of mercury in a dental environment.

3. Burrows, D. *Hypersensitivity to mercury, nickel and chromium in relation to dental materials*. International Dental Journal, v. 36, no. 1, March 1986, pp. 30-34.

4. Chiodo, G.T. and Rosenstein, D.I. *Pregnancy and risks in the dental office*. Dental Assistant, v. 55, no. 2, March-April 1986, pp. 9-12.

5. Donovan, T.E. and Handlers, J.P. *A rational policy on the use of dental amalgam*. California Dental Association Journal, v. 12, no. 2, February 1984, pp. 10-12.

6. Jackson, L.A. *Mercury: clinical con-*

siderations in dentistry for children. New York State Dental Journal, v. 52, no. 2, February 1986, pp. 24-26.

7. Mackert, J.R., jr. *Hypersensitivity to mercury from dental amalgams*. Journal of the American Academy of Dermatology, v. 12, no. 5, part 1, May 1985, pp. 877-880.

8. Mann, J., Eisman, Y. and Ernest, M. *Mercury: health hazards in dentistry. Literature review and recommendations*. New York State Dental Journal, v. 52, no. 6, June-July 1986, pp. 21-25.

9. *The mercury hazard in dentistry*. Dental Update, v. 13, no. 1, January-February 1986, pp. 5-6.

10. Naleway, C. and others. *Urinary mercury levels in U.S. dentists, 1975-1983: review of Health Assessment Program*. Journal of the American Dental Association, v. 111, no. 1, July 1985, pp. 37-42.

11. Newman, A.M. *The relationship of metals to the general health of the patient, the dentist and office staff*. International Dental Journal, v. 36, no. 1, March 1986, pp. 35-40.

12. Nilsson, B. and Nilsson, B. *Mercury in dental practice. I. The working environment of dental personnel and their exposure to mercury vapor*. Swedish Dental Journal, v. 10, nos. 1-2, 1986, pp. 1-14.

13. Nylander, M. *Mercury in pituitary glands of dentists (letter)*. Lancet, v. 1, no. 8478, February 1986, p. 442.

14. Orstavik, D. *Antibacterial properties of and element release from some dental amalgams*. Acta Odontologica Scandinavica, v. 43, no. 4, August 1985, pp. 231-239.

15. Perim, S.I. and Goldberg, A.F. *Mercury in hospital dentistry*. Special Care in Dentistry, v. 4, no. 2, March-April 1984, pp. 54-55.

16. *Recommendations in dental mercury hygiene, 1984. Council on Dental Materials, Instruments, and Equipment*. Journal of the American Dental Association, v. 109, no. 4, October 1984, pp. 617-619.

17. Roydhouse, R.H., Ferg, M.R. and Know, R.P. *Mercury in dental offices. Survey in Vancouver, B.C.* Journal of the Canadian Dental Association, v. 51, no. 2, February 1985, pp. 156-158.

18. Skuba, A., Matthew, C. and Goldhawk, M. *Survey for mercury vapour in Manitoba dental offices. Summer 1983*. Journal of the Canadian Dental Association, v. 50, no. 7, July 1984, pp. 517-522.

19. White, I.R. and Smith, B.G. *Dental amalgam dermatitis*. British Dental Journal, v. 156, no. 7, April 1984, pp. 259-260.

20. Wilson, S.J. and Wilson, H.J. *Mercury vapour levels in a dental hospital environment*. British Dental Journal, v. 159, no. 7, October 5, 1985, pp. 233-234.

One copy of the above articles is available at no charge from the Library to all CDA members. Non-members will be charged \$5.00. This bibliography was generated with the help of MEDLARS.

La bibliothèque de l'ADC offre gratuitement à ses membres et pour \$5.00 aux non membres une copie des articles au-dessus. Cette bibliographie a été préparée avec l'aide de MEDLARS.

OBITUARIES NÉCROLOGIES

BROWN, C.: A graduate of McGill University in 1950, Dr. Brown was born in Newfoundland in 1924. He practiced dentistry in the Canadian Armed Forces from shortly after graduation until his retirement, with the rank of Major, in 1977. He was a resident of Winnipeg at the time of his death.

COSFORD, WH: Born in 1950, Dr. Cosford graduated from the University of Alberta in 1975. He was practicing in Brooks, Alberta, at the time of his death.

GERVAIS, J.-E.: Né en 1897 et diplômé de l'Université de Montréal en 1924, le

D^r Gervais habitait à Joliette (Québec) au moment de son décès. Il était membre permanent de l'Association dentaire canadienne.

LAMARCHE, B.-A.: Né en 1918 et diplômé de l'Université de Montréal en 1946, le D^r Lamarche habitait à Châteauguay au moment de son décès.

MAZER, N.L.: A graduate of McGill University in 1954. Dr. Mazer practised in Sturgis, Kelvington, Kamsack and Yorkton, Saskatchewan.

STOCKTON, H.P.: A 1946 graduate of the University of Toronto, Dr. Stockton was born in 1918. He had a practice in Virden, Manitoba, for 24 years.

Book Reviews

FULL MOUTH WAXING TECHNIQUE

Charles E. Stuart

Quintessence Publishing Co.
Chicago, Ill.
\$32.00 U.S. 64 pages

The stated purpose of this publication (found at the very end of the introduction) is "that others will become more familiar with and gain a greater understanding of the technique of producing an organic occlusion".

This immediately raises several questions concerning definition, occurrence, rationale alternatives and desirability of such an organic occlusion.

In the first half of the book, the author attempts to deal with these issues in two chapters entitled "Occlusion as seen through the eyes of Charles Stuart" and "Rehabilitation of a Fallen Dentition: Technique for Prescribing in Wax Forms".

To readers familiar with the tenets of gnathology, there is nothing new or enlightening in these chapters. To the uninitiated, the undiluted imbibition of this material could have disquieting consequences. For example, in a section entitled "The Kindest Type of Occlusion Summarized", under the heading "Conformity by Orthodontics" the author states: "often the rehabilitator learns to do his own orthodontic surgery". In the same section, the author continues "But teeth made mobile by the loss of such (periodontal) attachments need to be tied together by splints built into the restorations to remain more fully stabilized. Such restoration appliances have been dignified by calling them "prosthetic periodontiums (sic)".

The waxing technique (which takes up the 2nd half of the book) requires a detailed study of 22 plastic sheet overlays integrated with 25 pages of text. This is no easy task to perform, without even considering the manipulative variables associated with the waxing procedures. (For those desirous of learning and perhaps teaching a wax-additive method, there are far better manuals available).

The illustrations themselves are superbly done and are a compliment to Frederick V. Ayres, the illustrator. However, like gnathology in general, there is an over-

abundance of technique with a dearth of science.

This treatise is an extension of the inventive, analytic and caring nature of Dr. Stuart. It should have a major place as an archival document. Students of the history of restorative dentistry should be encouraged to peruse these pages as they provide insight into the evolution of modern Rehabilitative Dental Science.

*This book was reviewed by
Dr. Justin A. McCarthy
Professor and Head,
Dept. of Rehabilitative
Dental Science,
Faculty of Dentistry,
University of Manitoba*

"SOCIAL SCIENCES AND DENTISTRY — A CRITICAL BIBLIOGRAPHY"

L.K. Cohen and P.S. Bryant

Quintessence Publishing Co.
(on behalf of Fédération Dentaire
Internationale)
London, England; Pages 429;
Price: Not available

Almost a decade and a half have elapsed since the first volume of *Social Sciences in Dentistry* was published by the Fédération Dentaire Internationale. Volume II is an enormously comprehensive addition which, for the period 1970 to 1982, covers the literature of the social and behavioural sciences as they focus on the areas of oral health and disease. Of critical importance to dentistry in the 1980's and beyond are the profession's appreciation of the changes in patterns of disease, changes in manpower, and changes in consumer attitudes and behaviour concerning oral health and disease.

The papers, of which there are seven, were prepared under the sponsorship of the National Institute of Dental Research of the United States' Department of Health and Human Services. The material has been organized around twelve specific objectives which, generally, may be stated to determine how behavioural, social, cultural, and economic factors influence oral health, and oral diseases and conditions. The authors have been carefully selected for their acknowledged competences and the breadth and depth of their contributions to their disciplines bespeak an exercise in dental

scholarship rarely equalled and probably never exceeded.

The titles of the articles are: Psychophysiological Changes and Oral Conditions; Public and Professional Adoption of Selected Methods to Prevent Dental Decay; Controlling Dental Disease through Prevention: Individual, Institutional, and Community Divisions; Utilization of Professional Dental Services; Behavioural Factors Influencing Dental Treatment; the Impact of Professional Education on the Performance of Dentists; and Social, Psychological, and Economic Impact of Oral Health Conditions, Diseases and Treatments.

The treatise is subtitled, "A Critical Bibliography". It is truly that. In all, there are some 1957 references, a treasure trove for committed researchers and a catalyst for those with their intentions not yet conceptualized.

*This book was reviewed by
Dr. Wesley J. Dunn, Professor
Division of Community Dentistry
The University of Western Ontario
London, Ontario*

"FUNDAMENTALS OF DENTAL RADIOGRAPHY"

Second Edition

L.R. Manson Hing, DMD, MS
Lea & Febiger, 1985, 236 Pgs.

Philadelphia, Pa.
Price: \$33.00

In a critical evaluation of this textbook I would first strongly agree with the author that this book does not represent an in-depth coverage of the subject of modern radiography in general or specifically in dental offices and dental institutions. Unfortunately it is the reviewer's experience that when an attempt is made to simplify a complex subject such as the knowledge surrounding the physical principles of radiography the treatment can be seen as fragmentary and may in fact in many instances be over simplified. This can lead to gaps in the knowledge base of individuals functioning as dental radiographers when new developments appear as they are today.

I would first wish to make an overall comment on the quality of the illustrations in this textbook. When one considers the technol-

ogy available today for production of very high quality reproductions of radiographs there is no excuse for the quality seen in this text. Notable examples are Page 89, Figure 7-7, Figure 7-8, Page 93, Figure 7-15, Page 51, Figure 4-15. The interpretation of radiologic shadows is difficult under ideal circumstances without examples such as these being used for teaching purposes. Furthermore the complete intra oral series seen in Figure 12-11 is actually upside down.

The coverage of the placement of intra oral film is complete and accurate with good line drawings demonstrating the objectives of each film in what may be classified as a full mouth series. With the new regulations in both Canada and the United States today I would have preferred seeing instrumented techniques emphasized and discussed first as the patient holding the film is definitely only a last resort or where instrument placement is totally impossible. I also feel that rectangular collimation which is being used as the only means of collimation in many institutions also deserves more than a passing remark.

Most dental offices do not own cassettes for "extra oral" radiography nor the equipment up to today's standards (grids, etc.) thus the whole section on this type of examination is inappropriate. Dental practitioners wishing such films would be better served by requesting a general radiologist's opinion and allowing him to take the necessary films on the most appropriate equipment.

In summary I would suggest that dental radiography has progressed much farther than this textbook would suggest and although there are some valuable classical sections its use as a required or reference text would be limited.

*This book was reviewed by
Dr. Charles Baker,
Dept. of Stomatology,
University of Alberta*

"TEXTBOOK OF CLINICAL PERIODONTOLOGY"

Jan Lindhe

*W.B. Saunders Co. Canada
Toronto, Ont.
Price: \$82.50
Pgs: 549*

The contribution of Scandinavian research to recent periodontal literature has been immense and it is fitting that Jan Lindhe and 22 co-authors, all from Scandinavia, should produce a textbook on periodontology. The format of the book is conventional with initial chapters on periodontal anatomy, epidemiology, etiology and pathogenesis followed by chapters on examination, treat-

ment planning and various forms of periodontal therapy. Of the 25 chapters Jan Lindhe is co-author of 12 and Sture Nyman of 9.

The opening chapter, "The Anatomy of the Periodontium", is disappointing. While well illustrated, the bulk of the text consists of extended legends to each figure making it disjointed and difficult to read. No references are cited in the text although a short, highly selective reference list appears at the end of the chapter.

Most of the succeeding chapters are of higher quality. Thus "Epidemiology of Periodontal Disease" is a comprehensive review, written and illustrated clearly and well referenced. Chapters reviewing plaque and calculus and the microbiology and pathogenesis of plaque associated periodontal disease are comprehensive and current. The chapter on microbiology, particularly, makes a complex subject easily understood. Closer editorial review, however, would have been appropriate to prevent repetition and overlap between and even within these chapters.

"Juvenile Periodontitis" relies too heavily on a detailed analysis of cited papers to the detriment of an integrated textbook description of the subject. The following chapter, "Necrotizing Gingivitis", covers most aspects of the subject although this writer has reservations about some points concerning diagnosis and treatment of the disease.

The chapter on "Trauma from Occlusion" is brief, well written and, in conjunction with the later chapter "Occlusal Therapy", provides the best discussion of occlusion and periodontal disease in any of the current textbooks.

Three useful chapters, "Interrelationships between Periodontics and Endodontics", "Manifestations of Systemic Disorders in the Periodontium" and "Tumors and Tumor-like Lesions Originating in the Periodontium" find a place before the therapy chapters which form the second half of the book.

Of particular value in examination and treatment planning is the section on errors inherent in periodontal probing. The use of terms — *levis*, *gravis* and *complicata* for differing degrees of periodontitis, however, seems inappropriate when not integrated clearly into treatment planning.

Periodontal therapy as such is presented unevenly. Given the authors' clearly stated skepticism regarding the need for mucogingival surgery, it is surprising to see almost the same amount of space devoted to this subject as to pocket surgery which covers gingivectomy, flap curettage, osseous surgery, suturing, dressings and anesthesia. A detailed, analytical review of reattach-

ment and new attachment, well illustrated both with line drawings and clinical photographs, further emphasizes the unevenness. More illustrations to accompany the text would be helpful for techniques of instrumentation and sharpening and clinical photographs of periodontal surgical techniques would add immeasurably to the excellent line drawings.

The chapter on restorative dental considerations for patients with advanced loss of periodontal tissue is extremely valuable. In contrast, a disappointing chapter on orthodontic tooth movement in periodontal therapy is superficial and cites within the text only six of the 31 references at the end of the chapter. The book concludes with an excellent overview of the effect of periodontal therapy, including a critical review of many current papers, and a chapter on the maintenance phase of treatment.

The general standard of the book is high and several aspects are outstanding. It is a valuable addition to the periodontal literature.

*This book was reviewed by
Dr. John G. Silver,
Dept. of Oral Medicine,
University of British Columbia*

'AN INTRODUCTION TO DENTAL ANATOMY AND ESTHETICS'

**Robert R. Renner,
with contributions by
M.S. Apton,
H.O. Archard and
A.J. Gwinnett**

*Quintessence Publishing Co., Inc.
Chicago, 1985.
Hard cover, 286 pp.*

This new textbook is intended to be a primer for anatomy of the masticatory system and facial and dental aesthetics. In the preface it is stated that it is intended to assist "dental students and other paraprofessionals of dentistry, dental laboratory technicians, dental hygienists and dental assistants in understanding and interpreting the fundamentals of dental anatomy and esthetics". To a considerable extent this objective has been achieved for the latter three groups. The dental student has been less well served.

An account is given of the functional anatomy of the masticatory system and nearby structures, followed by detailed descriptions of the individual teeth. There follows a section dealing with development and structure of the mature dental and supporting tissues. Class I occlusion and variations in occlusal relationship are then considered. Facial and

intraoral anatomy, and dental and facial aesthetics are dealt with in the final chapters of the book. In conclusion there is a glossary of dental terms. Frequent use of summaries, and of facts extensively presented in tabular form facilitate access to information.

Illustrations made with line drawings can be selective in their emphasis and for this reason are often superior to photographs: the author has made use of both media and the photographs are usually of good quality with colour well rendered in most of the clinical pictures. Less happy results have been achieved in the photomicrographs of oral mucosa and of skin, where colour does little to enhance pictures of which many are of poor quality.

Included in an account of general functional anatomy of the masticatory system is an introduction to occlusion, both static and dynamic. In a diagram of the temporomandibular joint, anterior and posterior bands are indicated in the articular disk, as described by Leonard Rees (fig. 1-32a). This is useful for rough descriptive purposes but, the implied orientation of fibres between the so-called bands is not borne out histologically. Happily, the text makes it clear that the disk is deformable, conforming to the space it occupies.

In chapter 2, descriptions of the permanent teeth resemble those given in Kraus, *et al.* (1969). Here, however, all the surfaces of an individual tooth are described before moving on to the next one, rather than describing one particular surface at a time in each member of a tooth group, an irritating feature of the older work. The standard of photography of occlusal surfaces of teeth in Renner's book is good, but falls short of the magnificent pictures produced by Kraus and his colleagues. Pictures of occlusal surfaces in the present work are supplemented by shaded drawings which I do not find particularly helpful. The deciduous dentition is only briefly described. Emphasis is given to how deciduous teeth differ from their successors. The anatomy of the pulp has not been described in either dentition.

Development and structure of the teeth and supporting tissues are covered in a chapter illustrated with generally well chosen photomicrographs, radiographs, scanning electron micrographs, etc.

In a chapter on occlusion, the static and dynamic relationships of tooth contacts are described for a Class I occlusion. The main features of common malocclusions are also indicated. I take issue with the statement that a "Class III malocclusion (a true skeletal Class III) is the result of an overgrowth of the mandible relative to the maxilla." That is just one form of skeletal Class III.

An account of the edentulous state is welcome, along with a description of changes in soft tissues in the elderly. On page 233 it is said that the (presumably, mandibular — this is not stated) "residual ridge resorbs approximately three times as fast as the maxillary residual ridge" and possible reasons are given.

The lingual papillae are described in an account of oral mucosa, but the oft-forgotten foliate papillae have been omitted. These are clinically important because of their sometimes alarming appearance to the unwary, especially when inflamed. Apart from giving spine chilling gratification to the mirror gazing hypochondriac, they have occasionally been biopsied by clinicians who have failed to consider possible sources of irritation, or to establish that they are bilateral and unlikely to be the suspected malignancy. In pictures of the other papillae, magnification bars on the figures would have given the student a visual idea of the relative sizes of these structures. Instead, all have been photographed at a magnification of 16 X and then reproduced to show a fungiform papilla almost twice the size of a circumvallate, with the filiform not far behind. These pictures are not good. Fig. 5-60b is intended to show a taste bud. The photomicrograph is uninformative, being of very obliquely sectioned tissue. It should be replaced.

The final chapter is on aesthetics and it is interesting. Principles of dental and facial harmony are given in some detail and the author is careful to stress that subjective and societal factors are of considerable influence. For some reason the subject has been broken up, for it was really introduced at the beginning of the previous chapter. Also, some of the truly beautifully reproduced colour photographs in chapter 2 would more worthily grace an account of this topic.

I would not recommend that dental students buy this book for, in the accounts of occlusion, of development and structure of dental tissues, and the histology of the mouth, they would be paying for material which is covered in insufficient detail for their purposes — and paying dearly, given the lavish use of colour. Dental anatomy is already catered for in texts to which this one adds nothing. This work may find a place on the bookshelves of the other groups at which it is aimed.

Reference

Kraus, B.S., R.E. Jordan and L. Abrams: *Dental Anatomy and Occlusion: A Study of the Masticatory System*. The Williams and Wilkins Co., 1969.

*This book was reviewed by
Dr. D.J. Wigglesworth
University of Alberta*

MODERN GNATHOLOGICAL CONCEPTS — UPDATED

Victor O. Lucia

*Quintessence Publishing Co., 1983
Chicago, Ill.
Price: \$160.00 US
Pages: 440*

This textbook is clearly more than the title suggests and is a worthy addition to the library of the serious clinician in restorative and/or prosthetic dentistry. It would also make a useful inclusion in the "recommended reading list" of advanced prosthodontic programs. The text serves two useful purposes;

1. It provides one of the more lucid accounts of gnathological concepts extant. From an historical perspective this alone is sufficient justification for the book.

2. It is a compendium of treatment philosophies, principles and clinical skills acquired by an extremely competent clinician over a long professional life.

Overall, the book is very well produced with respect to illustrations and color photographs. The text is somewhat difficult to follow with respect to terminology and phraseology if one is used to contemporary styles in scientific writing.

In a stepwise approach to clinical rehabilitative dentistry, Dr. Lucia provides practical and clinically oriented explanations of diagnosis and treatment, with chapters on practical hints from forty years of practice. He also devotes some space to the advantages and disadvantages of becoming involved in full mouth rehabilitation cases and early in the book discusses the reasons for and against full mouth rehabilitation in general. There is little in-depth discussion of this most important topic. Most of his statements are extremely generalistic, almost to the point of over-simplification. However, to his credit, Dr. Lucia does address these questions; in marked contrast to earlier gnathological writings which tended to concentrate, almost exclusively, upon techniques. The text contains a good overview of the execution of a complex treatment plan including the importance of proper sequencing and the interaction required with other disciplines.

There are several areas of some controversy that Dr. Lucia comments upon. For example, he appears to implicate a malfunctioning occlusion as an etiological factor in periodontal disease, finding a "definite correlation. . . (that). . . generally precludes all other potential causes of the periodontal condition." Dr. Lucia is against permanent splinting except as a "last resort" situation. This is in contrast to statements made by Dr. Stuart in his recently

reviewed text "Full Mouth Waxing Techniques".

In sections dealing with the neurophysiology of the stomatognathic system, there are some rather controversial statements made with respect to proprioception and the contribution of certain masticatory muscles in producing mandibular movement patterns. For example, the attribution of the ipsilateral medial pterygoid as the causative agent of Bennett movement as the mandible approaches centric position. In this and in other situations Dr. Lucia's non-conventional use of references makes it very difficult to substantiate or to follow the rationale behind these statements. Whether he is relying upon clinical intuition or the results of published or unpublished research, is left to the reader to decide.

Forty pages of the text are devoted to clutch construction and the location of centers of rotation. Another thirty-three pages are devoted to the use of the Stuart and Denar articulators. However, by way of compensation, a good description and rationale for the recording of centric jaw registrations are provided.

Although the author states that great emphasis should be given to the importance of anterior guidance, scant attention is given to actual analysis of the anterior occlusion. Dr. Lucia recommends that it be modified to "take advantage of the mutability of the anterior guidance".

His approach to "Principles of Articulation" is standard gnathological material with little emphasis on the neurophysiology of the stomatognathic system. The mechanical approach emphasized here is, despite protestations to the contrary, a distinguishing characteristic of the true-blue gnathologist. An interesting aspect of the text is that a chapter devoted entirely to carving and articulation completely ignores the porcelain fused to metal restorations, and discusses full coverage of gold crowns on all posterior teeth (with or without "windows") and pinledge or porcelain jacket crown restorations for the anterior teeth. A subsequent chapter is devoted to the utilization of porcelain fused to metal restorations. This chapter is a good, basic, "clinician's" approach to porcelain fused to metal restorations. The material is inappropriate for a text entitled "Modern Gnathological Concepts" and the coverage of all the factors involved is uneven. Reference to other, more definitive texts, is advisable.

The chapters on diagnosis and on treatment planning are superficial in scope, but the advice given is appropriate. In a text which devotes much space to the rationale for treatment, it is unfortunate that more emphasis is not given to concepts of diagnosis and treatment planning. Another

chapter devoted to the removable partial denture with precision attachments is also inappropriate in a text entitled "Modern Gnathological Concepts", but the coverage given is quite sound and that in itself makes it a worthy inclusion in this book; as this is an area in which little definitive material has been published.

Summarizing, this text is a very practical and clinically oriented approach to diagnosis, the rationale for treatment and a step by step approach to clinical rehabilitative dentistry. It extends way beyond conventional gnathological concepts and could be more appropriately described as an "Apolo-gia" for Dr. Lucia's Professional Life.

*This book was reviewed by
Dr. J.A. McCarthy, Head,
Dept. of Rehabilitative
Dental Science
Faculty of Dentistry
University of Manitoba*

CARIES PREVENTION BY DOMESTIC SALT FLUORIDATION

K. Toth, Department of Dentistry and Oral Surgery,
University Medical School
Szeged, Hungary

*Publisher: AKADÉMIAI KIADO
Budapest, Hungary
\$18.00 U.S., 250 pgs.*

This book is an English translation of Professor Toth's extensive studies on the effectiveness of salt fluoridation in the prevention of dental caries. A unique situation, namely that communal water supply covered only 35 per cent of the population in Hungary in 1960 and only about 66 per cent in 1975 left a large part of the population unable to benefit from water fluoridation. Further, the World Health Organization, while noting the effectiveness and safety of drinking water fluoridation, recognizes that in many parts of the world the networks of water systems essential for water fluoridation are either non-existent or ineffective.

In a series of well thought out and designed investigations, Toth and co-workers set out the following objectives: to determine the optimal concentration of fluoride in domestic salt for maximum cariostatic action; determine caries effectiveness of salt fluoridation relative to water fluoridation; and to compare the economic aspects of water and domestic salt fluoridation. In these studies, in Hungary, the optimum concentration of fluoride per Kg of domestic salt was found out to be between 300 to 400 mg. It is interesting to compare this to Switzerland where 250 mg of fluor-

ide ion has been added to a kilogram of salt since 1969; in Columbia 200 milligrams of fluoride ion was added to the salt. These studies indicate that significant cariostatic benefits are obtained from the ingestion of fluoridated salt in different foods in both primary and permanent teeth. This is of particular interest since many authors have expressed the opinion that fluoride ingested in domestic salt is not necessarily effective for the primary teeth since the ingestion of salt by infants is negligent. In the age range 2-6 years the increase in the ratio of caries-free teeth is 42% and in the age group 7-11 years it is 38.9 per cent. The number of decayed (DMF) and, DMF teeth decreased by 66 per cent in the age range of 2-6 years and by 59 per cent in the age range of 7-11 years. Overall, in all the experimental villages caries prevalence decreased by 53 per cent in primary and by 59 per cent in the permanent dentition compared to the pre-fluoridation data.

The authors conclude that unlike fluoride tablets, salt fluoridation would be a true public health measure characterized by the fact that its protective effectiveness extends to all who are in need. Relatively low cost and comparative economic advantages of salt fluoridation have been pointed out in this publication. Fluoridation is not a compulsory measure; individuals have a choice whether or not to avail themselves of the benefit of protection from caries. In Switzerland where an overwhelming majority of the public who were given this choice have elected to ingest fluoridated salt.

This book is the most comprehensive and current publication on the subject of salt fluoridation. In those regions of the world where water fluoridation is not feasible, salt fluoridation remains a viable option. Dr. Toth's efforts are an important contribution to this end.

*This book was reviewed by
Dr. Gordon Nikiforuk,
Faculty of Dentistry,
University of Toronto.*

DENTAL CERAMICS: PROCEEDINGS OF THE FIRST INTERNATIONAL SYMPOSIUM ON CERAMICS

Edited by John W. McLean

*Quintessence Publishing Co., Inc. 1983,
Chicago, Illinois
\$140.00, 541 pp.*

No fewer than fourteen authorities in the field of dental ceramics offer their expertise in this publication. Quintessence has once again produced a top quality scientific volume with superior photographs and figures, many of which are in full color. Each generously referenced chapter concentrates

on 1983 state of the art information and includes recommendations for future research and development. The book is divided into five main sections, which could have been provided with descriptive headings to simplify reference use.

The first section covers the properties of porcelain. An introductory chapter by John McLean is mainly a summary of his previously published monograph material on the strengthening of dental porcelain. Related material is further reviewed in another chapter. A detailed summary of the chemical and physical properties of dental porcelains is included.

In the second section, the importance of proper tooth preparation is emphasized. An intelligent review of margin preparation and location is presented, prior to a consideration of optimal framework design. The optics of a porcelain restoration and natural tooth structure are compared. Various porcelain jacket crown techniques are described. An overview of nickel-chromium technology includes detailed laboratory and clinical techniques.

The next section focuses on occlusion and periodontal health as factors in long term prognosis. Criteria for successful porcelain occlusions are suggested. One author elaborates on the opaque cone technique for optimum accuracy. The relationship between ceramometal restorations and periodontal health is explored from the clinician's viewpoint.

The fourth section begins by tracing the evolution of ceramic casting alloys, indicating advances inherent in each successive alloy formulation. Screening tests for porcelain to metal bond strength, alloy castability and sag resistance are analyzed. An in-depth examination of metal-ceramic bonding and compatibility completes this section.

Shade matching is the theme of the final section. A review of the characteristics of light and color is followed by a discussion of colorimetry and its measurement in human teeth.

In summary, the topic is dental ceramics with contributions from a broad range of viewpoints. Both the limitations and the potentialities inherent in dental ceramics are reviewed. The book is informative rather than provocative. While the information was only totally up to date in 1983, its thoroughness makes this a solid reference source for educators, researchers, practitioners and students alike. Practical clinical and technical suggestions abound. Although the depth of presentation varies somewhat from chapter to chapter, this does not detract from either the continuity nor the utility of the text. Some chapters are too detailed for easy readability. However,

the book is intended as a source of comprehensive information on ceramics. It is!

*This book was reviewed by
J.K. Sutherland, BSc, DMD, MS
Associate Professor and Director,
Division of Fixed Prosthodontics
College of Dentistry
University of Saskatchewan
Saskatoon, Saskatchewan*

FUNDAMENTALS OF REMOVABLE PROSTHODONTICS

Dean L. Johnson &
Russell J. Stratton

*1st Edition
Quintessence Publishing Co., Inc.,
Chicago, Illinois, 502 pages*

This book consists of 487 pages, 450 illustrations (all line drawings) and is divided into three sections. Section One deals with the "basic science" component specific to the psychological, anatomical, and physiological aspects of removable prosthodontics. Section Two discusses Removable Partial Dentures and Section Three deals with Complete Dentures.

In Section One (the "Basic Science" component) the authors discuss the psychological aspects of identifying various categories of prosthodontic patients utilizing the traditional "House" classification. This, of course, is not new and has the potential of being unreliable in its application.

The text is critical of comprehensive interview questionnaires, such as the Cornell Medical Index, because they are too time consuming, but the authors make no offering of the advantages of this type of questionnaire that provides both medical and psychological aspects of the prosthodontic patient. Rather, the authors chose to emphasize what appears to be a modified Levin/Landesman interview that is very short and concentrates superficially on the psychological profile of the patient as opposed to combining both the psychological and physiological history. The prosthodontic osteology and myology is well illustrated, and the associated comments are clear and concise. A timely topic concerns the systemic changes in the elderly population and the recognition of the prosthodontic requirements of senior citizens. The most insensitive and unprofessional rendering of this section is the description of the alcoholic diet as a "booze" diet!!

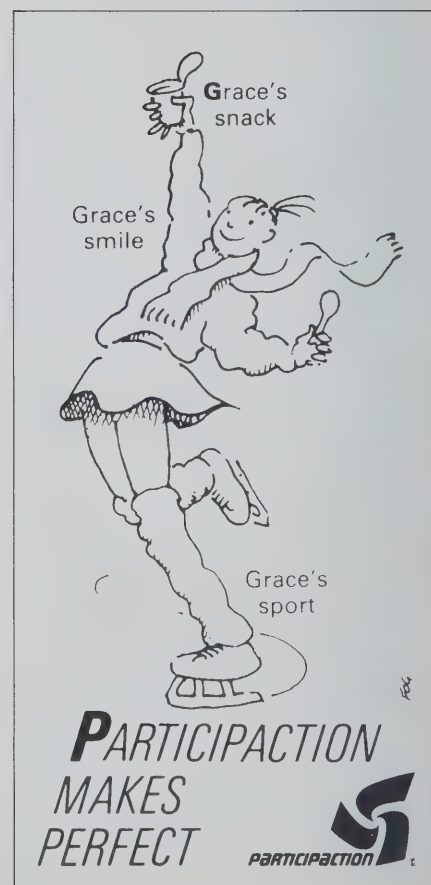
Section Two (Removable Partial Dentures) comprises approximately 50 per cent of the book. Concepts that are emphasized include the necessity of gathering diagnostic information, the responsibility of dental schools to teach students to write laboratory work-

authorizations, recalls and maintenance, home-care and prevention. The authors are wedded to the Kratochvil/Krol "RPI" concept, and the advantages of this philosophy are well illustrated. Unfortunately the disadvantages and contraindications are not identified thus depriving the reader of a comprehensive educational experience. An indifference towards excellence tends to become increasingly evident.

Section Three (Complete Dentures) is the most redeeming part of the text. It outlines the authors' clinical procedures in a step-by-step manner. The information is well-organized, enjoyable and informative. The chapters dealing with three types of face-bows and articulators plus the chapter on Tooth Selection and Arrangement is excellent in dialogue, explanation, defense of concepts, and illustrations.

Difficulty is experienced in reviewing this text due to the fact that the cover of the book states: "Fundamentals of Removable Prosthodontics" truly represents a "new age" text in the field. Consequently a reader anticipates a spiritual prosthodontic experience to occur — it just doesn't happen!

*This book was reviewed by
Dr. Wm. T. Harley
Professor,
Division of Removable Prosthodontics
University of Alberta
Edmonton, Alberta*



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- References: 1. LAMSTER, I. et al.: Clin. Prev. Dent., 6:12 (1983).
2. MENAKER, L. et al.: Ala. J. Med. Sci., 16:71 (1979).
3. ROSS, N.M., et al.: Warner-Lambert research report #955-0875 (1976).
4. YANKELL, S.L., et al.: Warner-Lambert research report #955-0893 (1976).

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Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Orthodontics for the General Practitioner	Orthodontics	Jan. 23 1987	Lecture Demonstration	Drs. A.H. Mamandras, D.C. Way	Limited to 20	\$165 Tuition	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Update '87		Jan. 31	Lecture	Drs. G.Z. Wright, R.E. Jordan	Limited to 85	\$135	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Occlusion II A Gnathologic Waxing Course	Occlusion	Feb. 6-7	Lecture Demo. Participation	Dr. W.R. Teteruck	Limited to 16	\$500	GPs Lab Technicians	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Removable Partial Dentures	Prosthodontics (Removable)	Feb. 26-28	Lecture	Dr. P.S. Sills	Limited to 30	\$400	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Panoramic Dental Radiography	Oral Radiology	March 4	Lecture Demo. Participation	Drs. R.G. Stephens, J.A. Reid	Limited to 12	\$120	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Electro-surgery in General Practice	Fixed Prosthodontics	March 6	Lecture Demo. Participation	Dr. D.R. Gratton	Limited to 20	\$225	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Complete Dentures Today	Removable Prosthodontics	March 20-21	Lecture	Dr. P.S. Sills	Limited to 30	\$250	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Aesthetic Dentistry	Fixed Prosthodontics	April 2-4	Lecture Demo. Participation	Drs. R.E. Jordan, D.R. Gratton	Limited to 30	\$525	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Occlusion III A Practical Approach to Occlusal Equilibration	Occlusion	April 24-25	Lecture Demo. Participation	Dr. W.R. Teteruck	Limited to 16	\$600	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138

Continuing Dental Education

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Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Forensic Dentistry — An Overview	Forensic Dentistry/ Sciences	April 24	Lecture Demo.	Dr. S.L. Kogon	Limited to 30	\$75	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Nitrous Oxide Oxygen Conscious Sedation	Oral and Maxillo-Facial Surgery	May 21-23	Lecture Demo. Participation	Drs. I.D.F. Schofield, A.G. Parnell	Limited to 20	\$350	GPs	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry, University of Western Ontario London, Ont. N6A 5C1	London, Ont.	Practice Administration in the 80s	Practice Management	April 10-11	Lecture	Dr. R.A. Brandon	Limited to 30	\$200 GPs \$150 Aux.	GPs Hygienists Assistants Receptionists Spouses	Mrs. M. Firmston (519) 679-2111 Ext. 6138
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	C.P.R. First Aid	Office Emergencies	Dec. 6 1986	Demo. Participation	St. John Ambulance	Open	TBA	Hygienists	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Space Management in the Mixed Dentition-Diagnosis and Treatment Planning (Part I)	Orthodontics	Dec. 13	Lecture	Course Coordinator Dr. R.C. Baker	Open	\$100	GPs	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	Space Management (Part II) (Note: Prerequisite is Part I — above)	Orthodontics	Jan. 10 1987	Participation	Course Coordinator Dr. R.C. Baker	Limited to 36	\$175	GPs	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3 (Manitoba Dental Hygienists' Association)	Winnipeg	Restorative Update	Operative Dentistry	Jan. 31 & Feb. 7	Lecture Participation	Dr. F. Matiwsky	Open	TBA	Hygienists	Mrs. Karen McLean (204) 788-6331

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3 (Manitoba Dental Hygienists' Association)	Winnipeg	Medical Emergencies in the Dental Office	Emergency Dentistry	Feb. 11	Lecture Participation	Dr. R.M. Boyar & expert-via teleconferencing	Limited to 35	TBA	All Dental Personnel	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3 (Alumni Association Homecoming)	Winnipeg Sheraton Hotel	Planning & People = Productivity + Profits	Practice Management	Feb. 28	Lecture	Dr. Jack Stockton & Sheryl Feller	Open	TBA	GPs Assistants Hygienists	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg	The Prevention and Treatment of Complications in Office Oral Surgery	Oral and Maxillo-facial Surgery	March 21	Lecture	Dr. S. Weinberg	Open	TBA	GPs Specialists	Mrs. Karen McLean (204) 788-6331
Faculty of Dentistry University of Manitoba 780 Bannatyne Ave. Winnipeg, Man. R3E 0W3	Winnipeg Westin Hotel	Jaw Function and Dysfunction		April 24 & 25	Lecture	Dr. Parker, E. Mahan	Open	TBA	GPs Specialists	Mrs. Karen McLean (204) 788-6331
University of Alberta & Edmonton Dist. Dental Soc. 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Investment Seminar (Merrill Lynch)	Practice Management	Jan. 16 1987	Lecture	Brian Anderson & Michael Beninger	Open	TBA	GPs Specialists Assistants Hygienists	*Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240

Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Sonics in Endodontic Practice	Endodontics	Jan. 31	Lecture Demo. Partic.	Dr. C.E. Hawrish	Open	TBA	GPs Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Refresher Course for Dental Hygienists	Dental Hygiene	Feb. 16 to 20	Lecture Demo. partic.	Ms. Barb Zier Ms. Jan Pimlott	Maximum of 40	TBA	Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Local Anaesthesia in Dentistry	Pain Management	March 7	Lecture Demo. Partic.	Dr. B.K. Arora & Associates	Maximum of 24	TBA	GPs Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Lethbridge Alta.	Physiology of Occlusion	Occlusion	March 14	Lecture	Dr. N.R. Thomas	Open	TBA	GPs Specialists Assistants Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Surgical Complications	Oral and Maxillo-facial Surgery	March 28	Lecture	Dr. B.K. Arora	Open	TBA	GPs Specialists Assistants Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Endodontic and Prosthodontic Treatment of Compromised Teeth	Oral Rehabilitation	April 4	Lecture Demo. Partic.	Dr. C.E. Hawrish Dr. K.H. Compton	Limited to 40	\$150	GPs Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Some Current Controversies in Orthodontics	Orthodontics	April 11	Lecture	Dr. K.E. Glover Dr. W.K. Lobb	Open	\$130	GPs Specialists Assistants Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Red Deer, Alta.	Traditional and new Restorative Materials	Dental Materials & Devices	April 25	Lecture	Dr. D. Bales & Dr. W. Yuodelis	Open	TBA	GPs Specialists Assistants Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Overview of Endosseous-Type Implants	Fixed Prosthodontics	May 2	Lecture	Dr. D.B. Gilboe & Associates	Open	TBA	GPs Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Calgary, Alta.	Over the Counter Dental Care Products: Clinical Efficacy and Client Use	Dental Hygiene	May 9	Lecture Demo.	Ms. Barb Zier & Ms. Jan Pimlott	Open	TBA	GPs Specialists Assistants Hygienists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Conscious Sedation in Dental Practice	Pain Management	May 25 to 29	Lecture Demo. Partic.	Dr. B.K. Arora & Associates	Limited to 16	\$1000	GPs Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240
Dept. of Continuing Education University of Alberta 4063 Dentistry/ Pharmacy Bldg. Edmonton, Alta. T6G 2N8	Edmonton Alta.	Osseo-integrated Implants-Surgical	Oral and Maxillo-facial Surgery	June 10 to 12	Lecture Demo. Partic.	Dr. B.K. Arora & Dr. Ulf Lekholm	Limited to 40	TBA	Specialists	Dr. Alex Bene or Ms. Debbie Grant (403) 432-5023 432-8240

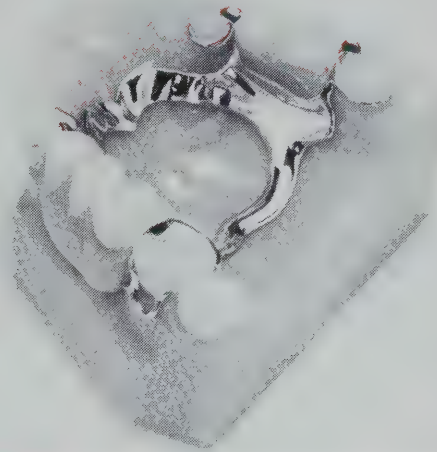
Continuing Dental Education

Sponsoring Institution Address	Location of Course	Title of Course	Subject Area	Date	Style	Instructor	Registration	Fee	Audience	Contact person/ Telephone
Faculty of Dentistry Continuing Dental Education University of British Columbia 105, 2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver	The Short Clinical Crown	Restorative Dentistry	Jan. 24 1987	Lecture	Dr. Robert H. Johnson & Dr. John C. Kois	Open	\$110 GPs \$65 Aux.	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627
Faculty of Dentistry Continuing Dental Education University of British Columbia 105, 2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver	Management of Dysfunctional Disorders – & Temporomandibular Joint	TMJ	Jan. 31	Lecture	Dr. Dennis Nimchuk (coordinator)	Open	\$110 GPs \$65 Aux.	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627
Faculty of Dentistry Continuing Dental Education University of British Columbia 105, 2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver	Clinical Management of Special Endodontic Procedures	Endodontics	Feb. 14	Lecture	Dr. John S. Biggens (Coordinator)	Open	\$110 GPs \$65 Aux.	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627
Faculty of Dentistry Continuing Dental Education University of British Columbia 105, 2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vernon, B.C.	Clinical Update on Aesthetic Composite Bonding: Technique and Materials	Dental Materials & Devices	Feb. 28	Lecture	Dr. Ron Jordan	Limited	TBA	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627
Faculty of Dentistry Continuing Dental Education University of British Columbia 105, 2194 Health Sciences Mall Vancouver, B.C. V6T 1W5	Vancouver B.C.	Periodontics and General Practitioners	Periodontics	March 14	Lecture	Dr. M. Drago	Open	\$410 GPs \$65 Aux.	GPs Specialists Hygienists Assistants	Jane M. Wong (604) 228-2627

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VISIBILITY AND PRESTIGE OF OCCUPATIONS AND THE IMPORTANCE OF DENTAL APPEARANCE

Joanna Jenny, Ed. D.

Iowa City, Iowa

John M. Proshek, BS

St. Paul, Minnesota

Empirical research has confirmed the importance of physical attractiveness in a variety of social contexts. Attractiveness affects interpersonal relationships across a variety of experiences typical of various stages of the life cycle. Grade school teachers attribute to attractive children greater academic potential and predict superior social relationships with peers. Outside the school setting, a child's attractiveness influences parents' expectations for personal and social success. The influence of attractiveness in dating preferences and behavior has been the subject of much research.¹⁻³

Perceptions of competence and performance in job settings can be influenced by physical attractiveness. Prior to getting an opportunity to demonstrate one's competence in a work setting, discriminating factors can be working against the less attractive individual. Several studies indicate that attractiveness also differentially influences a person's chances in employment settings.¹

In a study by Dipboye et al.,⁴ college students and professional interviewers rated and ranked bogus employment resumes on suitability of the applicant for a managerial position. Both groups of raters evaluated resumes more favorably for attractive applicants.

Cash et al.⁵ evaluated the generalizability of Dipboye's findings to non-managerial jobs. Cash utilized a similar methodology, asking personnel consultants to evaluate

bogus resumes of attractive and unattractive applicants on their potential performance in several pre-selected currently available jobs. They found results consistent with those of Dipboye et al. The employment potential of both sexes was perceived to be significantly greater for attractive applicants.

Facial attractiveness as portrayed in photographs of the head and shoulders is the stimulus most often employed in physical attractiveness research. Reactions to such stimuli have been found to be approximately the same as when the person is evaluated in vivo.⁶ Dental appearance has been cited as an important cue in assessing facial attractiveness.^{1,7,8} It is, therefore, possible that highly visible dentofacial deformities could constitute a definite handicap to the attainment of occupational goals. Examples of dentofacial disorders include malocclusions of the teeth, such as malposed teeth and excessive overjet. They also include deformities such as a protruding or receding chin or clefts of the lip or palate. The effects of these conditions may be disfigurement and speech defects. Other unappealing conditions include discoloured teeth, missing teeth, fractured teeth and ill-fitting and unnatural-appearing dentures.

The study reported in this paper explores the perceived importance of dental attractiveness in employment contexts. Its methods differ from the tradition of physical attractiveness research in that respondents are not asked to evaluate the bogus resumes

of job applicants whose dentofacial appearance has been judged as attractive or unattractive. Instead, respondents were asked to rate the importance of dental attractiveness for individuals intending to enter any of 88 occupations that had been rated independently for prestige of the occupation and visibility of the job applicant to customers or clients.

The importance of dental appearance in specific social situations was studied by Linn.⁹ His respondents were a nationwide, stratified, multistage probability sample. He reported that dental appearance was perceived to be "very important" for a person "running for public office". Among the occupations consistently rated as most prestigious were state governors, United States Representatives in Congress, and mayors of large cities. Extending Linn's findings would suggest that in other prestigious occupations dental appearance would also be rated as very important. Hypothesis 1 predicts that for prestigious occupations, good dental esthetics will be seen as very important for anyone seeking to enter such occupations.

Hypothesis 2 states that the importance of dental appearance is highly related to the visibility of the person. Linn⁹ reported that salespersons were more likely to emphasize the importance of dental appearance and less likely to have visible missing or discoloured teeth than persons in other occupations. The fact that both politicians and salespeople are highly visible to their con-

stituents, customers or clients suggests the likelihood that dental esthetics in these and other occupations where persons are highly visible would be rated as very important.

A halo effect was discovered by the National Opinion Research Center¹⁰ in the evaluation of jobs and occupations. The investigators, North and Hatt, found that when a person rated the general standing or prestige of his own job or one closely related to it, his evaluation was almost always considerably higher than the average evaluation of that position.¹⁰ A halo effect also seemed to be operating in a study by Cohen and Horowitz,¹¹ where children were asked to rate the esthetics of dental appearance as depicted in drawings, representing a range from ideal or attractive to less attractive occlusal relationships, and to identify which representation most looked like their own teeth. Children whose self-image resembled a particular occlusal condition tended to rank it higher in attractiveness on a preference hierarchy than those who did not perceive themselves in that condition. In all instances, children who selected any given self-image ranked the attractiveness of that condition at a level either equal to or higher than did the entire population.

These findings indicate that people are prone to over-value their own conditions and situations in comparison with others' evaluation of the same conditions or situations. Hypothesis 3 states that persons in selected occupations may have the tendency to rate the importance of dental appearance in their own occupations as being more important than would those not in that occupation. The importance of this hypothesis, were it supported, would lie in the potential rejection of otherwise qualified applicants for occupations of their choice by personnel directors holding excessively stringent requirements for attractive dento-facial appearance as a prerequisite for success in the job.

MATERIAL AND METHODS

Selection of Subjects

Five groups of subjects were asked to rate the importance of dental appearance for entry into 88 occupations. The five respondent groups were: 1) education students (N=221), 2) dental hygiene students (N=48), 3) dental students (N=52), 4) airline attendant trainees (N=29), and 5) dental school clinic patients (N=134). The total sample size (N) was 484.

Instrument Development

An instrument was developed from a hierarchy of 88 occupations rated for prestige in a study by Hodge et al.,¹² who found a correlation of 0.99 between prestige scores

derived from the 1947 North-Hatt-NORC¹⁰ study of occupational prestige and their 1963 replication of it. These occupations were presented to subjects in random order.

To establish the visibility of persons in occupational settings, a separate group of 95 education students were asked to rate each of the same 88 occupations, presented in random order, for visibility. These students were asked to rate the extent to which they believed a person holding the job would deal face-to-face with the general public, with customers, or with clients. Mean scores for the degree of visibility were calculated from the responses of this sample. This group was not utilized in the remainder of the study.

Data Collection

The instrument was self-administered. Subjects were asked to rate each occupation from 1 (very important) to 4 (not at all important), to identify occupations in which they believed good dental appearance would be important for persons who would like to enter any of the 88 occupations. Mean scores for importance of dental appearance were calculated from the responses of the 484 subjects described above.

RESULTS

To test hypothesis 1 (good dental esthetics will be seen as very important for persons seeking to enter prestigious occupations) and hypothesis 2 (the importance of dental appearance is highly related to the visibility of the person in the job), the importance of dental appearance scores were correlated with both the prestige scores and the visibility scores across occupations. The results indicated that both prestige and visibility were highly correlated with the importance of dental appearance ($r_{ip} = 0.62$, $t(85d.f.) = 7.285$, $p < .001$; $r_{iv} = 0.73$, $t(85d.f.) = 9.713$, $p < .001$), substantiating the *a priori* hypotheses 1 and 2 as stated. It should be noted that the signs of the correlation indices have been corrected to reflect the conceptual direction of relationships. These findings indicate a high relationship between prestige and dental appearance and a strong relationship between visibility and dental appearance.

It was also considered that there may have been a relationship between prestige of occupations and their visibility with a possible confounding of the relationships observed between the importance of dental appearance and each of the factors, prestige and visibility. To investigate these inter-relationships, the correlation between prestige and visibility was determined ($r_{pv} = 0.12$). Subsequently, the partial correlations of the importance of dental appearance with prestige, controlling for visibility, and the converse, importance of

dental appearance with visibility, controlling for prestige, were determined. In both cases, the correlations increased in a positive direction, indicating that the inter-relationship of prestige with visibility, although low, was masking a portion of the association between importance of dental appearance and both prestige and visibility independently ($r_{ip/v} = .79$; $r_{iv/p} = .84$). An interesting sidelight was that there was an almost negligible relationship between the prestige level of an occupation and its degree of visibility.

A difference-of-means test, the *t* test, was used to evaluate hypothesis 3, in which it was expected that persons in particular occupations would have a tendency to rate the importance of dental appearance for those within that occupation as being higher than persons not in that occupation would rate it. The sample of education students was compared to the remaining total sample on the ratings of importance of dental appearance for the occupation "public school teacher". The sample of airline attendant trainees was compared to the remaining sample for the occupation "airline pilots", this occupation being closest in nature to defining the sample available in this study. For the occupation of "dentist" the sample of dental hygienists and dental students was utilized.

In the cases of the occupations "public school teacher" and "airline pilot", the hypothesis was upheld. The average ratings of importance of dental appearance by the education students' sample obtained a mean value of 1.425; the remaining sample, comprised of dental hygiene students, airline attendant trainees, dental students and dental clinic patients, obtained a mean importance score of 1.599. The *t* value obtained in this test was -3.161, significant at the 0.005 level with 481 degrees of freedom. The airline attendant sample obtained an average importance score of 1.574 as compared to the mean of the remaining samples of 2.222 for the occupation "airline pilot" was also significant with $t = -5.428$, $p < .0005$, with 481 d.f. For the occupation "dentist", the hygiene students and dental students were combined to formulate a similar sample to the occupation under examination and were compared to the remaining combined samples of education students, airline attendant trainees and clinic patients. In this case, the differences obtained were not significant ($1.0741 - 1.1216 = .0475$; $t(482 d.f.) = -1.052$; n.s.). Upon observing the values of the means of these two combined samples, it might be interpreted that all respondents rated the importance of dental appearance for dentists as being extremely high, thus obviating any possible observed differences.

DISCUSSION

The findings of this study indicate that occupations that are considered prestigious and/or those in which the occupant is highly visible to the public require good dental esthetics in the person who seeks to enter them. Highly prestigious occupations for which dental appearance was rated as very important included political and professional occupations such as "state governor", "U.S. representative in Congress," dentist, physician and lawyer. Highly visible jobs, for which dental appearance was also rated as very important included a number of occupations with medium or low prestige scores such as singer in a night club, public school teacher, bartender and traveling salesman.

The expectation that persons in particular occupations have a tendency to rate the importance of dental appearance for those within that occupation more highly than those not in the occupation was partially upheld. Future teachers were more apt to believe dental appearance was very important for teachers than were non-future teachers. Airline attendant trainees were more likely to believe pilots require good dental esthetics than were other respondents. All the respondents agreed that for a dentist, dental appearance is important. An applicant with poor dental appearance applying for a position or training in these fields might be at a disadvantage during an interview with a company's or school district's personnel officer. A dental school applicant with poor dental esthetics might fare less well with a dental school's admission committee than an applicant with an attractive dental appearance. Interviewers may be swayed by a beautiful smile and succumb to a "beauty is talent" stereotype.¹³

Society has established norms for acceptable dental appearance. Extreme deviations from the norms are defined by society as unacceptable.¹⁴ According to Goffman,¹⁵ when one's physical attributes deviate too far from socially defined norms one may be disqualified from full social acceptance to the extent that one's life chances are reduced.

This study has shown that dental appearance that deviates from acceptable norms might indeed reduce one's life chances. For occupations where dental appearance is very important — those that are prestigious and those in which the occupant is visible to the public — an individual's dentofacial disorders may well come between his career aspirations and his career opportunities.

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Reprint requests to Dr. Jenny

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DEMAND AND SUPPLY OF DENTAL SERVICES: AN ECONOMIC PERSPECTIVE

Ray E. McDermott, DDS, MSc
Saskatoon, Sask.

ABSTRACT

The demand and supply of dental services are discussed from an economic viewpoint in this article. Factors that affect demand and supply of goods and services in the business world are presented and equated with analogous factors influencing the demand and supply of services in the dental service industry. Under present day conditions, it might be advantageous to the dental profession to base manpower planning and dental fees on the demand for dental services, rather than on perceived needs for these services and increases in the cost of living index.

Manpower oversupply and the decline in dental diseases have been receiving much attention by the profession of late. In Canada, the Canadian Dental Association convened a symposium in Toronto, in October 1985, to examine all facets of the potential problems that these phenomena could cause. In some countries this situation has resulted in the closure of dental schools and in others there has been a reduction in the numbers of students admitted to first year classes.¹

This article examines some of the factors that affect manpower planning and which should be taken into account when future planning and recommendations are being considered for this profession.

In the past, manpower planning has been based largely upon the prevalence of dental diseases as established by surveys, carried out by dental professionals, on various age groups, in various parts of the country. When 98 per cent of the population was found to be afflicted by dental decay, and the backlog of needs could not possibly be met by the current supply of dental services, there was no reason to question this method of planning. However, all reports today indicate a rapidly declining incidence of dental caries, declining dentist-to-population ratios, and increasing numbers of dentists reporting a lack of business in their practices.

If planning is looked at from an economic viewpoint, the supply of goods or services is seen to be based upon demand for those goods or services rather than upon perceived needs for those services. The planning of manufacturing facilities, distribution services, retail centres, sales personnel, and auxiliary supporting services on the basis of perceived need, do not translate into good business. The discussion that follows will examine the relationships between demand and supply in the dental service industry — an industry that, in 1982, accounted for an expenditure of \$1.6 billion, (5.6 per cent of all dollars spent on health care in this country, or \$68.24 per person per year.²)

Demand

In economic terms, demand is defined as a schedule that shows the various amounts of a product consumers are willing and able to purchase at each specific price in a set of possible prices during some specified period of time.³

The quantity demanded is how much of a commodity a person is willing and able to purchase, and not how much he would like or succeed in purchasing. If the supply is limited, then his wishes could exceed the actual amount of the commodity he is able to purchase. In this case the demand exceeds the supply. This was the case for dentistry prior to the 1980's.

Consumers, whenever possible, attempt to maximize the satisfaction of their wants to increase their sense of well-being. However, many factors interact to influence a person to transform a want into a demand. A fundamental characteristic of demand: as prices fall, the corresponding quantity demanded rises; or, alternately, as prices increase, the corresponding quantity demanded falls. Economists have labelled this inverse relationship the *law of demand*. Price is considered the most important determinant of demand; however, factors other than price can affect purchases. These are known as the non-price determinants of the amount demanded. The basic non-price

determinants of demand are: the income of consumers, their tastes or preferences, the price of substitute goods (a good that can be consumed in place of the good in question), the price of complimentary goods (a good that is consumed jointly with the commodity in question), the consumers' expectations with respect to future prices and incomes, and the number of consumers in the market.

Application to Dentistry

When we look at the demand for dental services, it can be seen that most of these same determinants of demand can be equated, albeit with some variations and additions. The factor of price, or in this case *fees for dental services*, will have the same inverse relationship to the quantity of services demanded. In a free market system, if the non-monetary factors are held constant, then an increase in dental fees will result in a decrease in the quantity of services demanded and the reverse will also hold true.

An increase in *consumers money income* will cause a direct increase in demand for dental services as more discretionary income becomes available for purchases. The reverse will be true as consumers' income decreases, and the competition for these discretionary dollars increases, then the demand for dental services will decrease. In the past several years, as Canada has experienced recessionary pressures and some compression of nominal income, dental services have come into more direct competition with consumer goods.

Tastes or preference of consumers can directly affect dental service demand. The trend in recent times has been positive for the profession, due in part to the influence of television. The greater part of the industrialized world has access to television and the fashion in this industry is to portray everyone with a beautiful smile. The long-term influence is that everyone is expected to possess a good dentition and unesthetic dentitions with missing teeth are not socially acceptable. Therefore, taste or fashion has a positive impact on demand, tending to hold the demand curve in a stable position, in spite of the negative effects of restrictions of consumer income or increases in fees.

Television is having yet another effect on dental services. As a result of cable television and direct satellite reception becoming available to a large segment of the viewing audience in Canada, the advertising of dental services allowed in the United States, but restricted in this country, is having a spillover effect. This is reflected in dental offices in this country by increasing requests for information concerning enamel bonding techniques which are extensively advertised

on American television. In these examples, changes in tastes or fashion are having a positive effect on demand for services.

Prices of substitute goods can be equated to the fees charged by denturists for dentures. Increases or decreases in the cost of these services will have an inverse affect on similar services provided in the dental office.

Prices of complimentary goods do not have as distinct a relationship with dental services as is the case in the goods market. However, the services provided in dental offices by dental auxiliaries are dependent upon patients seeking care in that office. Therefore, if dental fees in general are perceived as high, including the fees charged for the services provided by auxiliaries, there will be a direct effect of decreased demand for auxiliary services.

Consumer expectations of increased fees will have little effect upon demand for services; however, expectations of changes in consumer incomes could be reflected in dental service demand, particularly if a threat to the patient's earning potential is perceived. The *number of consumers* in the market does have a direct effect upon dental service demand. The unprecedented increase in the numbers of dentists that has outstripped the growth in the population in this country is one of the major concerns of the profession today. If, however, the present number of dentists graduating from dental schools is held constant, the long-term effect will be to bring the dentist-to-population ratio back to an acceptable level to provide sufficient demand to keep dentists employed. This will result from increases in the world's population. In spite of the drop in the global "rate" of growth to 1.7 per cent annually, the expanding population base, now at 4.8 billion, is predicted to reach 6.3 billion by the year 2000 and over 8 billion is predicted for 35 years from now.⁴ Canada, along with other sparsely populated nations, will be forced to increase levels of immigration.

Other Factors Unique to Dentistry

Third party payment schemes, often referred to as dental insurance, have an effect upon demand for services. They have had a positive influence, both in periods of high inflation and in periods of recession, by evening out the effects of increasing fees and decreasing incomes. Their greatest period of growth was in the 1970's and future increases in this method of payment may not occur. With declining caries rates, the individual and the family can now predict future expenditures for dental care; they are no longer insuring a random risk. It is possible that the cost of the premiums required by the carriers to meet expenses and provide a profit to the underwriter,

could be greater than the actual cost of dental services to a family on an annual basis. It is also possible that governments may decide to make employer-paid plans a taxable benefit since these plans are seen as inequitable to the general population. In these instances, the positive influence of third-party payment plans on the utilization of dental services may cease.

Government funded dental service programs are a further factor unique to the dental industry. In the past, when dentists were in limited supply and dental caries affected 98 per cent of the population, governments attempted to alleviate this problem by setting up various school based programs. Under present day circumstances, any increase in these programs would cause a corresponding decrease in demand for services in the private sector among the child population.

The *decline in dental caries prevalence* that is apparent in the industrialized world is having an impact on demand. "Drill and fill" services have made up the largest component of the mix of services offered by the majority of dental practices in the past. Declining caries rates are reducing this segment and are undermining the basis for the biannual check-up that the profession has promoted over the years in the name of improved dental health.

Supply

Supply may be defined as a schedule that shows the various amounts of a product that a producer is willing and able to produce and make available for sale in the market at each specific price in a set of prices during some specific time period.³

Supply is usually viewed from the vantage point of price. That is, we read "supply" as showing the amounts of a product that producers will offer at various possible prices. Instead of asking what quantities will be offered at various prices, we can ask what prices will be required to induce producers to offer various quantities of a good to the market?

A fundamental characteristic of supply: as price rises, the corresponding quantity supplied rises; as price falls, the quantity supplied also falls. This relationship is called the *law of supply*. It simply tells us that producers are willing to produce and offer for sale more of their product at a high price than they are at a low price. As was shown previously, a high price is a deterrent to the consumer who will buy less at the higher price. The supplier, on the other hand, will receive greater revenue per unit at a higher price, so the inducement is for him to produce more product and offer it in the market.

Price is considered the most important determinant of supply. As in the case of demand, certain non-price determinants of

supply affect the amount of product the supplier makes available in the market. The basic non-price determinants of supply are: the techniques of production, resource prices, taxes and subsidies, price of related goods, price expectations, and the number of sellers in the market.

Application to Dentistry

On the supply side, the direct comparisons of dental service supply to the determinants of supply as shown in the economic model are not as evident or direct as with the demand model. However, some comparisons are still possible. As in the case of the demand schedule, the price component can be viewed as *fees for dental services*. An increase in dental fees means an increase in the revenue-producing potential of the profession. This can influence the number of applicants to colleges to dentistry as the profession is seen as a high income-producing occupation. This view ensures an adequate supply of students into the system. If the profession is not held in high regard as a desirable occupation, then students will choose to enter other professions, resulting in a decline in the supply of dental services along with a decline in the numbers of graduating dentists.

In the non-price determinants of supply, the *techniques of production* do apply to dentistry. Advances in technology such as the introduction of the air turbine handpiece, enamel bonding techniques, and the adaptation to more efficient modes of delivery of services, have made it possible for each individual dentist to supply more dental services per unit of time than was possible in the past.

The factor of *resource costs* can be equated to the costs of acquiring a dental education. A change in the cost of supplying dentists who produce the services, could have an effect on the supply of these services if tuition fees became a deterrent to students entering the dental schools.

The factors of *taxes and subsidies* apply to the supply of dental services in the extent to which tuition fees are eligible tax deductions and post-secondary education is supported by public funds. A direct relationship exists in the fact that if governments withdrew support for universities, the cost of acquiring a dental education would become prohibitive to many individuals, thus reducing the numbers of students and therefore the numbers of graduate dentists.

The *price of related goods* can be reflected in the income levels of allied or other career choices available to students. If the incomes of physicians or lawyers, for example, were to be far in excess of those of dentists, then many students would opt for a different

TABLE I

Market supply and demand for dental services

Total Quantity of Dental Services Supplied Per Week	Average Price Per Service	Total Quantity Demanded Per Week	Surplus (+) or Shortage (-)
320,000	\$50	120,000	+ 200,000
200,000	\$40	140,000	+ 60,000
170,000	\$30	170,000	0
140,000	\$20	210,000	- 70,000
110,000	\$10	260,000	- 150,000

career choice if the revenue producing potential of dentists is viewed as inferior. This would result in a decrease in the supply of dental services.

The factor of *expectations concerning the future price of a service* and the producer's willingness to supply that service have little or no effect on the mix of dental services a practitioner is likely to supply. The fees for dental services are listed in suggested fee guides according to time and responsibility factors, and are not subject to unusual price fluctuations.

The *number of sellers in the market*, or the number of individual dentists willing and able to supply dental services is a major factor affecting the dental marketplace. The large increase in the number of dentists in Canada, due to increases in both the number of dental schools and undergraduate class sizes during the 1970's, has resulted in an over supply of dental services available. While the market has been expanding, the supply of services has expanded at a rate considerably in excess of the expansion in the potential market.

Those factors having the greatest influence on the supply side of the dental demand/supply equation are those of techniques of production and the numbers of dentists in active practice.

Combining the Effects of Demand and Supply

The concepts of demand and supply must be brought together to illustrate how the interaction of the buying decisions of households and the selling decisions of producers will determine the price of the product and the quantity that is actually bought and sold in the market. **Table I** is an example of a supply and demand schedule using a set of hypothetical values for price and quantity of services supplied. Columns 1 and 2 are an example of a market supply schedule for dental services, while columns 3 and 4 illustrate a market demand schedule. Column 2 is a common set of fees and the assumption is made of a free market with competition and the presence of a large number of buyers and sellers.

Of the five possible levels of price per service shown, which one will actually prevail as the market fee for service? If we look at \$50 per service, we see that this could not be the prevailing fee since producers are willing to supply to the market 320,000 units of dental service at this price, while buyers are willing to utilize only 120,000 at this price. The relatively high fee encourages the capacity to supply 320,000 units of service, but the same high fee discourages consumers from utilizing these services. The result is a surplus of 200,000 units of service. This results in competing dentists bidding down the fees in order to utilize excess capacity. If the fee gravitates to \$40 per unit of service, the surplus would diminish to 60,000 units. At this level, market forces still act to bid down the price of dental services.

At the foot of column (2), the possible market price is \$10 per unit of service. At this price the quantity demanded is in excess of the quantity supplied by 150,000 units. This relatively low price discourages students from entering the profession, resulting in fewer dentists being available to provide services. The same low price encourages consumers to buy more services than would otherwise be the case at higher prices. In this case, competition among buyers will bid up the price since many potential customers will express a willingness to pay a price in excess of \$10 to ensure that they receive some of the scarce dental services. Similar market forces prevail at the \$20 fee level. Only at the \$30 per unit of service price does the quantity demanded equal the quantity supplied. Economists call this the *equilibrium price and quantity*. A graphic analysis of demand and supply will yield the same conclusions and is shown in **Figure 1**. The horizontal axis represents both the quantity demanded and the quantity supplied. The vertical axis represents the price per unit of service. The intersection of the down-sloping demand curve (D-D), and the up-sloping supply curve (S-S), indicates the equilibrium price and quantity of \$30 and 170,000 units of service per week. Shortages of units of service that would

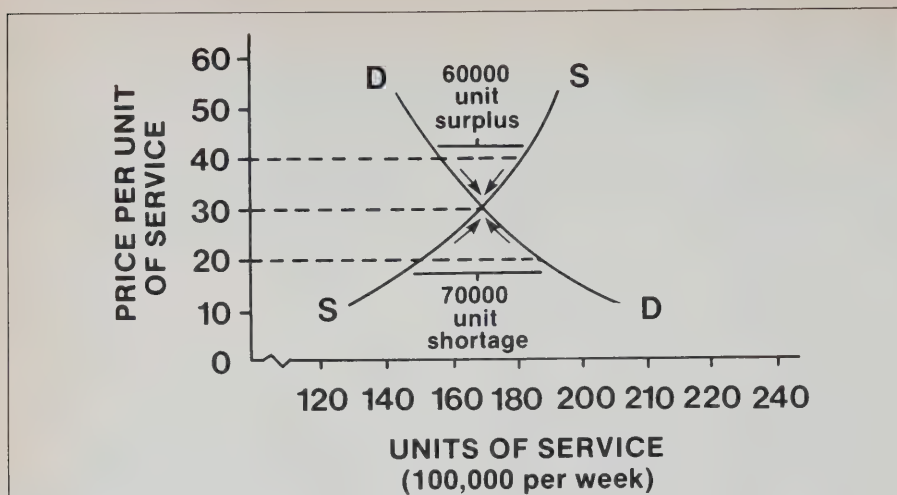


Figure 1. Demand and Supply Curves (Equilibrium Point)

exist, for example, 70,000 units at \$20, drive fees up and in so doing increase the quantity supplied and reduce the quantity demanded until equilibrium is achieved. The surplus of units of service that exist at 60,000 and a fee of \$40, tends to force prices down, thereby increasing the quantity demanded and reducing the quantity supplied until equilibrium is again restored.

Discrepancies between the supply and demand intentions of buyers and sellers will prompt fee changes which tend to bring these two sets of factors into accord with one another.

Rationing Function of Fees

The ability of the competitive forces of demand and supply to establish a price where demand and supply decisions are synchronized is sometimes called the *rationing function of prices in the market*. In this case, the equilibrium fee of \$30 clears the market, leaving no burdensome surplus for the dentists and no inconvenient shortage for the potential patients. The composite of freely-made individual buying and selling decisions sets this fee, which clears the market. In effect, the market mechanism of demand and supply says this: any buyer who is willing and able to pay \$30 for a unit of dental service will be able to acquire one; those who are not, will not. Similarly, any seller who is willing and able to produce a unit of service and offer it to the buyer at the fee of \$30 will be able to do so successfully; those who are not, will not.

Summary

Demand refers to a schedule that summarizes the willingness of buyers to purchase a given product during a specific time period at each of the various prices at which it might be sold. According to the law of demand, consumers will ordinarily buy more of a product at a low price than they

will at a high price. Therefore, the relationship between price and quantity demanded is inverse and the demand curve is seen to be a negative or down-sloping curve as represented by (D-D) in Figure 1.

Changes in one or more of the basic determinants of demand, consumer tastes, the number of buyers in the market, the income of consumers, the prices of related goods, and consumer expectations, will cause the market demand curve to shift position. A shift to the right is an increase in demand; a shift to the left is a decrease in demand. A change in demand is to be distinguished from a change in the quantity demanded, the latter involving a movement from one point to another point on a fixed demand curve due to a change in price of the product under consideration.

Supply is a schedule showing the amounts of a product producers would be willing to offer in the market during a given time period at each possible price at which the commodity might be sold. The law of supply says that producers will offer more product at a higher price than they will at a lower price. As a result, the relationship between price and quantity supplied is a direct one, and the supply curve is seen to be a positive or up-sloping curve as represented by (S-S) in Figure 1.

A change in technology, resource costs, prices of other goods, price expectations, or the number of sellers in the market will cause the supply curve of a product or service to shift. A change in the price of a product will result in a change in the quantity supplied; a movement from one point to another on a given supply curve.

Under competition, the interaction of market demand and market supply will adjust price to that point at which the quantity demanded and the quantity supplied are equal. This is the equilibrium price or fee. The corresponding quantity is the equilibrium quantity.

The ability of market forces to synchronize selling and buying decisions so as to eliminate potential surpluses or shortages is sometimes termed the rationing function of prices.

A change in either demand or supply will cause the equilibrium price and quantity to change. There is a direct relationship between a change in demand and the resulting changes in equilibrium price and quantity. Although the relationship between a change in supply and the resulting change in equilibrium price is inverse, the relationship between a change in supply and equilibrium quantity is direct.

Conclusions

This paper was written to give the reader a basic understanding of demand and supply theory from an economic viewpoint.

What should become evident from this article is that demand for dental services is cost sensitive. Treatment for the relief of pain is not cost sensitive, but the bulk of dental treatment, being of an elective nature, is cost sensitive. Fees will need to be set in a rational manner that will provide a balance between an income level that is profitable for the dentist and yet will not stifle demand for dental services. If the dental market is able to remain relatively free of government control, then with a large number of consumers and a large number of dentists offering services in a competitive market, the costs of services will be set in the market place as will the number of dentists offering these services.

It may be a prudent move on the part of the profession, the licensing bodies, and the dental schools to address manpower planning from the viewpoint of demand for services, rather than need for services, as has been the practice in the past. This approach would ensure a better balance between the demand for dental services and the supply of those services.

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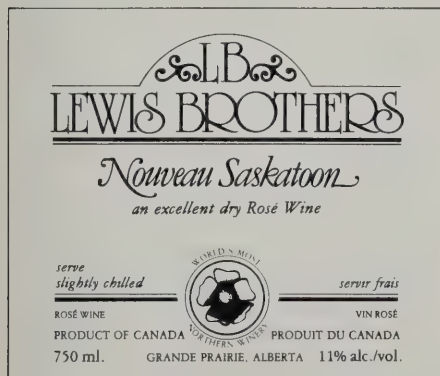
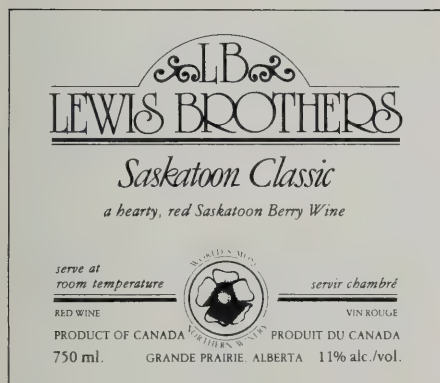
Reprint requests to Dr. McDermott.

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Specialty Features

ALBERTA DENTAL PRACTITIONER ESTABLISHES UNIQUE WINERY



Distinctive labels have been designed for the unique Lewis Brothers wines. Two of them are reproduced herewith.

What is billed as "The World's Most Northern Winery" will be formally opened in Grande

Prairie, Alberta, the middle of this month. The occasion will be a dream come true for Dr. Michael Lewis, a much-travelled general dental practitioner and his physician brother, Dr. Cledwyn Lewis.

(Dr. Michael Lewis describes the development in the text which follows.)

Travel Inspired an Interest

When they finally came together in the Prairie Medical and Dental Clinic in Grande Prairie, the two brothers had chalked up an impressive professional mileage around the world: Michael as a dental surgeon in Buckinghamshire and London's Cavendish Square and then Nairobi in Kenya and Cledwyn as an army regimental medical officer in Germany, Gibraltar, the Middle East and Cyprus. During this time, they had both been exposed to a multitude of wine experiences in a total of more than 20 countries. This had firmly instilled in them a deep sense of wine's historical and cultural background in the development of civilization as we know it.

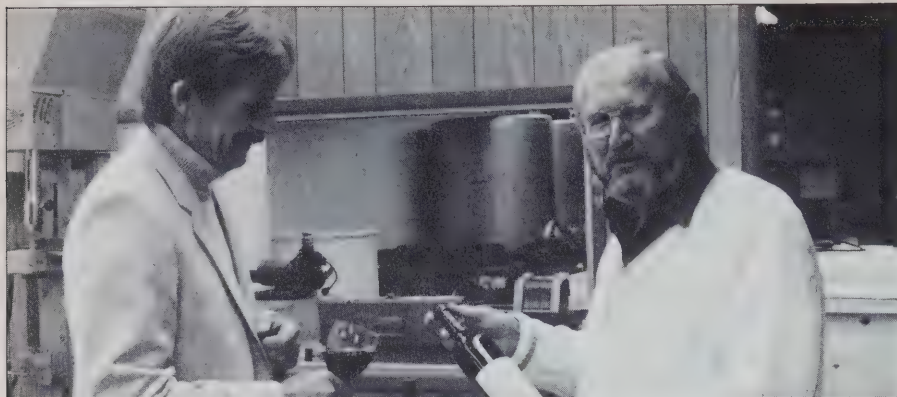
This interest in wine led the two health professionals, in a series of stages, first to the wine-making as a hobby, and then, to

the development of the present cottage winery.

They have established the world's most northerly winery and are now producers of unique wines made with saskatoon berries, coinciding with Northern Alberta's emerging saskatoon berry industry, and existing Alberta honey of superb quality.

Many of the brothers' original ideas began in the period from 1980 to 1983, when they would meet regularly to taste and discuss wines, attempting to provide that elusive chimera, the description of sensations that would reveal to people what a wine was about by reading a reasonably simple formula on a bottle. From these discussions three main points emerged — first, that the formula was unobtainable, second, that some form of regular society would be of benefit in expanding wine knowledge, and third, to start some basic wine-making experiments as background for wine tasting.

The Alberta Wine Education Society was formed with a group of friends in May 1983 and meets regularly to taste and discuss various wines. While essentially an educational process, the meetings are run on an informal basis in members' homes and are anticipated as a most pleasant form of social enterprise.



Dr. Michael Lewis, right, discusses the merits of a product of the Lewis Brothers Winery with the company's new winemaker, Frank Bandelow, who has had extensive experience in the Okanagan in B.C. and two wineries in California.

Not a Smooth Start

The decision to make wines did not start as smoothly and easily as did the formation of the society, despite the donation by a friend of suitable premises in a building originally designed as a washhouse for a nearby mobile home park, complete with a cool even temperature cellar that housed the water reservoir for the park. Suitable equipment for wine making at a five-gallon level was purchased from the local outlet for Wine Art of Vancouver as was the grape concentrate from which wines were to be made. It soon became evident however, that the grape concentrates, while producing decent wines, did not meet the requirements of a true cottage winery as they were not products possessing local appealing character.

It is unlikely that things would have proceeded further were it not for the persistence of some very basic ideals that the brothers held to be true — firstly that it is possible to make good wine out of just about anything and that to be seen to do so in an area not normally associated with that type of industry would be a positive statement in their belief that the making of vinous products is, has been and should be, a healthy part of man's history.

This precept is in grave danger of fading from present day culture because of easy access to mass produced wines. Well though many of such wines are made, they do not have the good "grass roots" quality that locally made wines should have. Indeed, the very fabric of Canadian society is very heavily slanted against such enterprises because of legal niceties embedded in provincial liquor control regulations. These are particularly true of Alberta which has only recently emerged as an area demonstrating degrees of education where historically there had been much more emphasis on control — indeed prohibition — than anything else. It was at this time that the idea of making a local industry of the

hobby came into being when the pair discovered a newly emerging saskatoon berry industry and began experiments with it and with man's most ancient source of alcoholic beverage — honey.

Honey — ancient Wine Source

So old is the making of honey wines or 'meads' that traces of them have been found in the tombs of Pharaohs and ancient peoples dating back at least 5,000 years. The word 'honeymoon' dates from the ancient Nordic bridegrooms' propensity for going on a month long binge based on such wines immediately after his marriage ceremony and its consummation. Yet today little remains of what was an almost everyday beverage — only one other Canadian winery (in Ontario) makes a rather sweet version of this ancient and characterful drink. By careful blending, the brothers were able to produce a drink of reasonable dryness, considerable complexity and one that would age beneficially — all considered to be basic criteria for a good new wine.

It was with considerable luck that sufficient berries were found to enable any form of research into the wine's possibilities at all. The idea had come late and the July/early August harvest was almost missed, but sufficient was stored away to allow many different basic combinations to be started during the late autumn and winter of '84. Early limited supplies in '83 had been obtained from the Federal Agricultural Research Department in Brooks, Alberta, and a useful research and development grant obtained from the Food Processing Branch of the Alberta Government's Department of Agriculture. This grant enabled the brothers to visit the cottage wine industries in the Okanagan Valley in B.C. and the Napa and Sonoma Valleys in California to test whether the theories that they had formulated were going to be very difficult to put into practice. The trips were very successful, and demonstrated clearly

that there was in principle little being done there that could not be done on a smaller scale in Northern Alberta and that they had to date been progressing along suitable lines.

The decision that had to be made over the winter of '84 was what form the main products would take for they had to be in a position to buy suitable saskatoon and honey harvests by the end of the '85 seasons. The honey was not a problem as one of the original ardent supporters of the enterprise was a local honey factor, whose products had been used all along. He had promised to supply their needs and ensure high quality. An initial purchase of 1,200 lbs of honey was to be used in translating the five gallon methods into 50 gallon methods, and its accompanying quality control, handling etc. This proved a reasonable if sticky translation and a firm order for a further three tons of high quality honey was made.

Berry Supply 'Elusive'

The berries however, proved somewhat more elusive, the local growers having split into two rather hostile groups with their own divergent ideas on what to do with their saskatoon harvests. One group had a firm conviction that making wine from saskatoons was a total waste of time and the future commercial useage of these tasty berries lay in their conversion to jams, jellies and preserves.

The other group were aiming at a fresh fruit market as well as preserves and hoped to have a suitable processing and freezing plant available by October 1986, together with enough saskatoons to have everyone ankle deep in them. A problem arose in 1985, however, because these growers reported they only intended to selectively pick the best fruit for taste testing and analysis. They did however reluctantly agree to provide one hand picked metric ton which would be suitable for 10,000 bottles of wine which with another 10,000 bottles of honey wine was deemed to be a sufficient production aim for the first year. This as much as anything, would be used to spread the name of the product and its good taste. Such was not to be. The harvest, because of dry weather, was not a good one, and the growers gave little priority to the winery requirements.

Good fortune now appeared in the shape of fellow professional Dr. Len Pearson, a Calgary dentist, who owns a large berry and saskatoon farm in Innisfail. He had previously believed it impossible to supply the brothers because of prior commitments and they too had hoped to buy locally because of the freight costs involved. Dr. Pearson however, had a bountiful crop, and was able to offer nearly two tons of berries, a source

of considerable relief, because the saskatoon wines were to be the 'flagship' of the winery's production.

Four Types of Wine

Four types of wine had been settled on after suitable checking, tasting and blending. A saskatoon wine made with a small amount of Shiraz grape juice that compared favourably with *Beaujolais Nouveau* and met with good reception at tastings as Alberta's *Nouveau Saskatoon*. The other saskatoon wine was blended with *Cabernet Sauvignon* grape juice. It is more complex and is called *Saskatoon Classic*. It is difficult not to compare wines but the brothers have not set out to copy any particular wines. They wish to produce quality wine that their taste determines as being as good as, if not downright better, than imports and other wines made in Canada.

With the honey there has been an attempt to make wines that are not sickly sweet and the two varieties produced should technically be called pyments rather than meads. A pyment is an ancient form of honey drink made from grape juice and honey and two are at present being made; a dry wine and a sweeter one both made from high grade local honey and Doradillo grape juice, called respectively *Dry mead* and *White Rose Mead*. Both show complexity and character beyond the sum of their totals. There are great hopes that aging will enhance these qualities, because meads are notoriously slow in liberating their inner beauty. A prominent distillery company is experimenting with fortification to produce a truly Albertan aperitif wine and a rival to port.

City Support

A decisive factor in the decision to make the winery work was the granting of suitable downtown premises by the City of Grande Prairie to the brothers to develop the winery as a tourist attraction, complete with winery tours, wine tastings and a wine boutique selling wine associated articles such as corkscrews, bottle holders, and locally made decanters and goblets.

Disaster then struck. Michael was to spend the months of December 1985 and January and February 1986 doing part time dentistry and setting up the new premises as a functioning winery as well as laying in stock to provide the winery with enough product to open in the summer. This was to catch the tourist trade en route to Alaska that regularly stops over in Grande Prairie. However, the fracture of a lumbar disc produced a painful immobility requiring later surgery. It resulted in three months of immobility, quite the reverse of what was needed to set the operation in motion. Some stock was laid in by dint of conscription of wife and children into the winemaker ranks



Toasting future success are, from the left: Dr. Cledwyn Lewis, brother and partner of Dr. Michael Lewis, right, and new winemaker Frank Bandelow, centre. Mr. Bandelow is described by Dr. Michael Lewis as a "an experienced and fine 'hands on' winemaker."

but it was insufficient to meet the expected market requirements.

An entire new rethink was called for and resulted in the sale of Michael's practice to the associate lined up to share the work load during the winery's formation, the taking on of four new partners and the resultant new capital as well as successfully advertising for a professional winemaker to take on the increasing load of wine production. Frank Bandelow from Mission Hills Winery in the Okanagan, with eleven years experience in winemaking and a keen desire to run his own winery was installed in August along with a satisfying quantity of suitable new equipment. The local saskatoon harvest was a bumper one and four tons of excellent saskatoons were cropped. Some were put into cold storage for winter production and some for immediate use in production of the *Nouveau Saskatoon* to be released in November. As the local honey factor was one of the new partners (along with a school principal, an orthodontist and an Hawaiian magazine and property entrepreneur) the honey harvest was assured of being the best the Peace Country could offer.

The Alberta Liquor Control Board had been supportive and the necessary licence appeared likely to be in place well before the planned November opening. Much of the first production has already been sold as special signed limited editions and many firms have ordered special custom labels for distribution to customers, clients and patients and because of the indicated demand plans are already underway for increased production facilities using modern stainless steel tanks whose use is so necessary for consistent wine quality.

The process has been a long one but rewarding, because it created something of value, a totally new product of unique and satisfying quality using pure Prairie, truly Canadian ingredients.

Dental Career

Dr. Lewis is a graduate of Guys Hospital Dental School, London, England. He

received his LDS, RCS(Eng) in November, 1960 and a BDS in January, 1961 at the University of London.

From 1961 to 1969, he had a private practice with offices in Cavendish Square, Iver Heath and Beaconsfield. From 1970 to 1978, Dr. Lewis conducted a private practice in Nairobi, Kenya.

When he came to Canada, he established a private practice in Grande Prairie, Alberta. He became part owner of the Prairie Medical and Dental Clinic in that community.

Dr. Lewis said he was largely involved in preventive dentistry, "making the public aware of the importance of good dental health."

The fracture of a lumbar disc in 1985 forced Dr. Lewis to retire from dentistry. He sold his practice and share of the medical and dental clinic.

He now resides in Victoria, British Columbia.

And his entrepreneurial spirit is still thriving. He has recently become a publisher. He has purchased the *Gordon Head News*, which serves an area of Victoria and more recently, the *Saanich News*. Dr. Lewis reported that he is enjoying this activity "immensely."

Government support

The Alberta Government, particularly the Department of Agriculture, is quite enthused about the new winery. The Department has been attempting to determine good commercial markets for the bountiful saskatoon berry crops. The interest has resulted in a further grant which will substantially assist the winery in its operating costs.

Previously the usefulness of the saskatoon berry was limited to the making of jams, jellies and preserves.

It led Dr. Lewis to comment: "every July and August there's a million bloody saskatoon berries around, and what are you going to do after you've made your 20th pie?"

EDUCATION

EUR) en garderie
Formation univer-
n garderie. Rive sud.

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te et saxophone demandes.
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que avec connaissance de la
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moquette, pouvant établir les
et renseignements touchant
concurrents. La personne
se sera en mesure de travail-
sur Apple McIntosh, de com-
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COMPTABLE

sur en construc-
voux, 4 à 5 ans
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Clinical Features

THE HYDRODYNAMIC IMPRESSION TECHNIQUE

Dr. M.P. Lococo*

INTRODUCTION

The hydrodynamic impression technique (HIT) was first introduced to the dental profession in 1982, and since, has found its way into the practices of dentists throughout the world.

As reported in a three year study by the Niagara Dental Group and corroborated by interviews with several HIT users, HIT has

demonstrated the ability to deliver highly accurate and detailed impressions with ease and consistency. (Figure 1). Excellent impressions can be taken with a stock HIT tray in a matter of minutes regardless of the complexity of the situation.

The revolutionary feature which makes the hydrodynamic impression technique more effective and consistent than conventional techniques, is the impression taker's

ability to totally replace the wash material in contact with the impression site, "after" the tray is seated in the mouth. This displacement occurs as a result of a series of injections of wash material through a canal system drilled in the putty. These injection canals extend from the tray surface completely through the putty, and are positioned to guarantee the irrigation and penetration of the operative area. (Figure 2).

This ability to flush contaminants to the exterior and the increased capacity to compact the wash material into difficult to reach areas has an effect on preparatory requirements as well. Unlike conventional techniques, moisture control, hemostasis and sulcular syringing are unnecessary. The only prerequisite to the HIT impression is conservative gingival displacement and margin exposure. The problems of air bubbles, voids, contaminants and missed margins are all but eliminated and retakes are a rarity. Polyvinylsiloxane impression material is the material of choice with the HIT system. This material is extremely accurate, has unparalleled dimensional stability and the durability to allow multiple pours or electro-plating. The superior tear strength and excellent elastic recovery insure the reproduction of detail captured only with pressure-flow HIT system.

Figure 1 shows the results of a three year study of the HYDRODYNAMIC IMPRESSION TECHNIQUE for crown and bridge impressions using polyvinylsiloxane putty and light bodied material.

This three year study, development, and evaluation was carried out by the Niagara Dental Group. Most of the retaken impres-

FIGURE 1

The Hydrodynamic Impression Technique

A FOUR YEAR OBSERVATION BASED ON EXCLUSIVE USE:

1983	CROWNS:	INLAYS:	ABUTMENTS:	PONTICS:	POST-CORE:
DR. LESKIW:	28	—	19	70	3
DR. KERSHAW:	60	3	56	31	4
DR. PRIMEAU:	57	—	62	33	2
DR. LOCOCO:	89	24	83	70	3
1984;					
DR. LESKIW:	22	—	22	15	1
DR. KERSHAW:	40	4	17	15	1
DR. PRIMEAU:	32	—	31	19	3
DR. LOCOCO:	84	24	41	32	3
1985;					
DR. LESKIW:	15	—	3	17	2
DR. KERSHAW:	55	—	32	22	—
DR. PRIMEAU:	27	—	41	22	2
DR. LOCOCO:	85	18	38	25	2
1986; (TO AUG.)					
DR. LESKIW:	6	—	4	2	—
DR. KERSHAW:	19	5	17	10	—
DR. PRIMEAU:	40	—	22	13	1
DR. LOCOCO:	41	14	16	11	2

The above cases were completed using the hydrodynamic impression technique. Thirty-three impressions required a second impression because of poor quality. All of the other procedures were successfully completed on the first impression attempted. Dr. Leskiw employed electrosurgical troughing followed by peroxide sponging. He had one retake. Dr. Kershaw used troughing burs and reported excellent results. Dr. Primeau used retraction cord and enjoyed very good results. Dr. Lococo experimented with several retraction methods and found conservative electrosurgery & small cord placement best.

*This clinical feature is based on Dr. Lococo's table clinic presented at the Ontario Dental Association Convention, May 1986.



Figure 2 Cross section of injection canals.



Figure 3 Taking a putty impression.

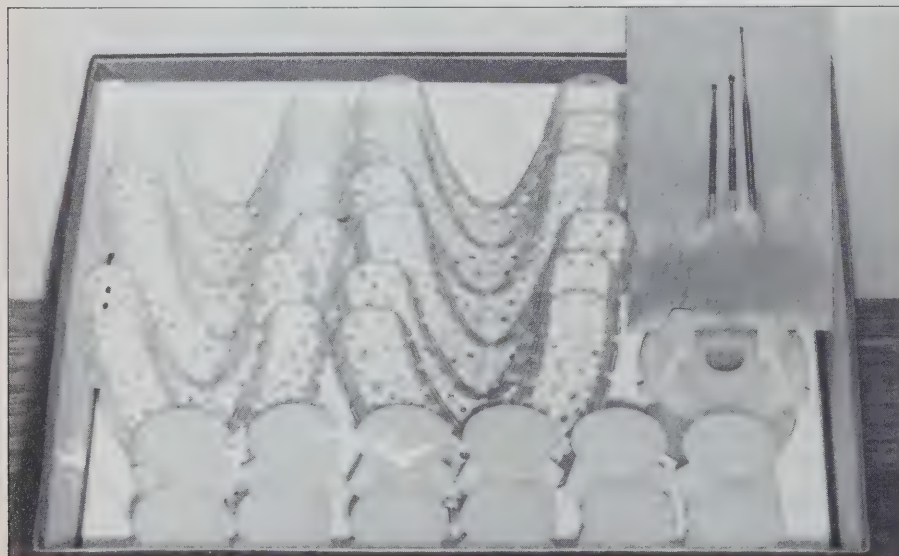


Figure 4 The HIT kit.

sions occurred in the first year when the system was being perfected.

The restorations were carefully checked for occlusal discrepancies and marginal accuracy prior to cementation.

It was noted in several cases that the proximal surfaces of the teeth adjacent to the prosthetic replacements were abraded in the die preparation at the laboratory. This resulted in very tight contacts which were not attributed to the material or the technique.

Several brands of material were used and compared. It was noted that the materials vary dramatically in their physical and chemical properties.

A comparative study of the different brands is definitely indicated to assist the dental community in material selection.

The Two Stage HIT Impression

The principles of the two stage putty-wash HIT impression differ dramatically from conventional putty-wash systems. In contrast to conventional methods, the putty impression is taken without the use of a separating medium, directly over the prepared teeth. Whereas conventional techniques make provision for the wash material, the HIT system does not. In effect, the putty that is in contact with the oral structures during the putty impression of the HIT method will be in contact with those same oral structures after the corrective injection phase. The corrective wash material only alters the putty impression to capture the extreme detail that the putty fails to reproduce.

To achieve this end, the putty impression must be resealed in its exact original position in a two stage seating procedure. First, immediately after the injections, the putty impression must be forcefully resealed. This pressure must be sustained for a few seconds to permit the wash material to escape and vent to the exterior. This purging pressure is followed by a light, evenly distributed supporting pressure which maintains the desired contact but avoids distortion. It is imperative that all injections and seating be complete before the initiation of polymerization. (Figure 3).

The HIT Kit

The drawer size kit contains all the equipment necessary to take a hydrodynamic impression. (Figure 4). The specialized trays feature surface receptacles which exactly accept the tip of the accompanying HIT syringe. In addition the tray has excellent retentive qualities and several break points to allow easy adaptation to the arch.

The syringe is designed not only to adapt to the tray but also to fit a locking slot on

the lid of the *mixing crucible*. After the wash material is mixed in the mixing crucible, the lid with the syringe in the loading position is pressed into place. The floor of the crucible is elevated thus forcing the material into syringe barrel air free.

Several *canal drilling burs* are also included. A full set of *instructions* accompany each kit.

Gingival Retraction

All accepted retraction methods are suitable when preparing the tissue for the HIT impression. If retraction cord is the method of choice, it should be neatly placed and remain in place during the putty impression. The putty will record the gingival tissue in its distended position. The retraction cord is removed just prior to the corrective injection phase. The wash material will flood the sulcus under considerable pressure resulting in a clearly readable gingival cuff. There is one exception to this exercise of totally removing the retraction cord prior to the HIT phase. When dealing with a deep sulcular crevice where electrosurgical intervention is contraindicated, the two cord technique is used. The initial cord is placed deep in the sulcus and remains there during the final impression. A second cord is placed neatly on top of the first cord and remains in place for the putty impression but is removed for the injection phase final impression.

One can be considerably more conservative and very kind to the tissues with the HIT method. If the margin is visible the HIT system will record it.

Since all contamination is forced to the exterior, one need not concern himself with bleeding or saliva. The sulcus is flushed with the air-water combination and the impression taken.

The Hydrodynamic Impression Technique

1. Modify a stock HIT tray to cover the dental arch and paint it with an adhesive.
2. Prepare the teeth and retract the gingival tissue.
3. Take a putty impression. (Figure 3).
4. Remove undercuts, tags, etc. and drill injection canals as described in the instructions that accompany the kit.
5. Take the corrective pressure-flow impression.
6. Seat the tray as described previously.
7. Send it to the laboratory as is. (Figure 7).

Conclusion

The hydrodynamic impression technique has simplified the art of crown and bridge impression taking by giving the impression taker a revolutionary corrective step which

conventional impression techniques do not have.

This extended control of the impression site has eliminated the need for many time consuming procedures which are necessary when using conventional methods.

In addition to being more efficient from a procedural standpoint it is very cost effective in that a fraction of the material is required in taking a HIT impression.

Since the material of choice is polyvinylsiloxane, the latest and best of the synthetic elastomers, the impressions taken with the HIT method require little or no attention post operatively. The accuracy, dimensional stability and durability give the laboratory technician every convenience.

The hydrodynamic impression technique is very easily learned. Tape recordings and video-tapes are available on the subject.

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Figure 5 Drilling the injection canals (step 1.) Drill from the desired starting area to the wall of the tray. The bur makes a visible mark.



Figure 6 Drilling the injection canals (step 2.) Complete the canal by drilling from the aperture to the mark.

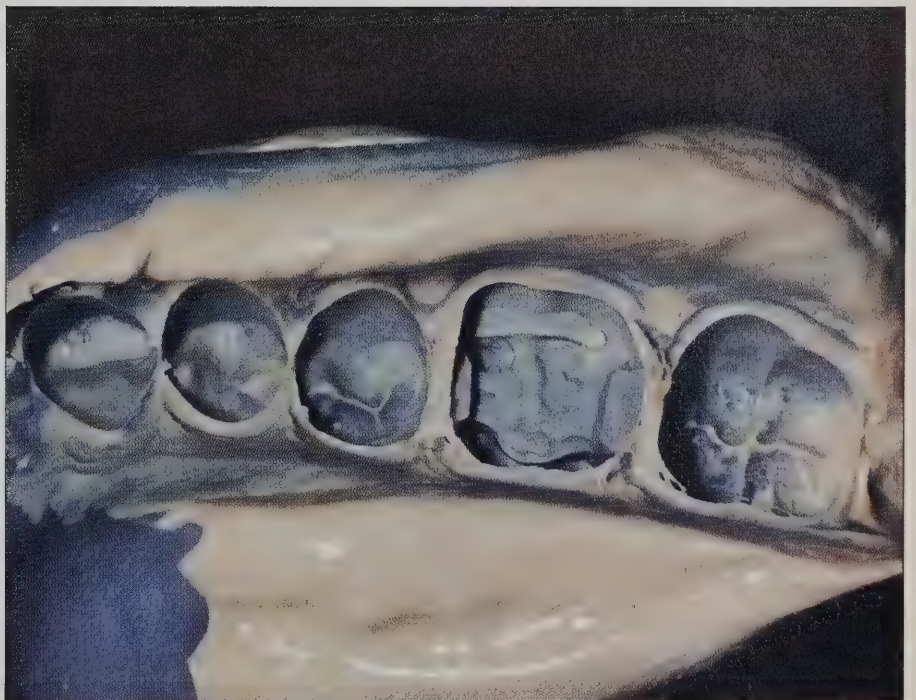


Figure 7 The complete impression.

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CALCIFYING
EPITHELIAL
ODONTOGENIC
TUMOR

(Pindborg Tumor)
REVIEW OF THE LITERATURE
AND CASE REPORT

Guy Maranda, DDS, FRCD(C), FICD, FAIDS
Morris Gourg, DDS

SUMMARY

A review of the anatomic, clinical, radiographic and microscopic features of the calcifying epithelial odontogenic tumor (Pindborg Tumor) is presented. Methods of treatment are discussed. The case reported herein respects the usual pattern of origin, age group and clinical and histopathological features. The lesion however, occurred in the maxilla, a less frequent site than the mandible.

RÉSUMÉ

Cet article permet de mettre en relief les caractéristiques anatomiques, cliniques, radiologiques et microscopiques de la tumeur de Pindborg. Une évaluation des diverses formes de traitement sont aussi discutées. L'étude du cas d'un patient de trente-cinq (35) ans nous permet de faire une corrélation entre les divers éléments de cette lésion qui fut découverte au maxillaire supérieur.

The calcifying epithelial odontogenic tumor is a rare tumor⁶. It was first described by Pindborg in 1958 as a distinct entity belonging to the family of epithelial odontogenic tumors⁶. It has been described under different names such as unusual ameloblastoma⁶, calcifying ameloblastoma⁶, malignant odontoma⁶, adenoid adamantinoblastoma¹⁹, cystic complex odontoma¹⁹ and as a variant of the simple ameloblastoma¹⁹. The mean age of occurrence is

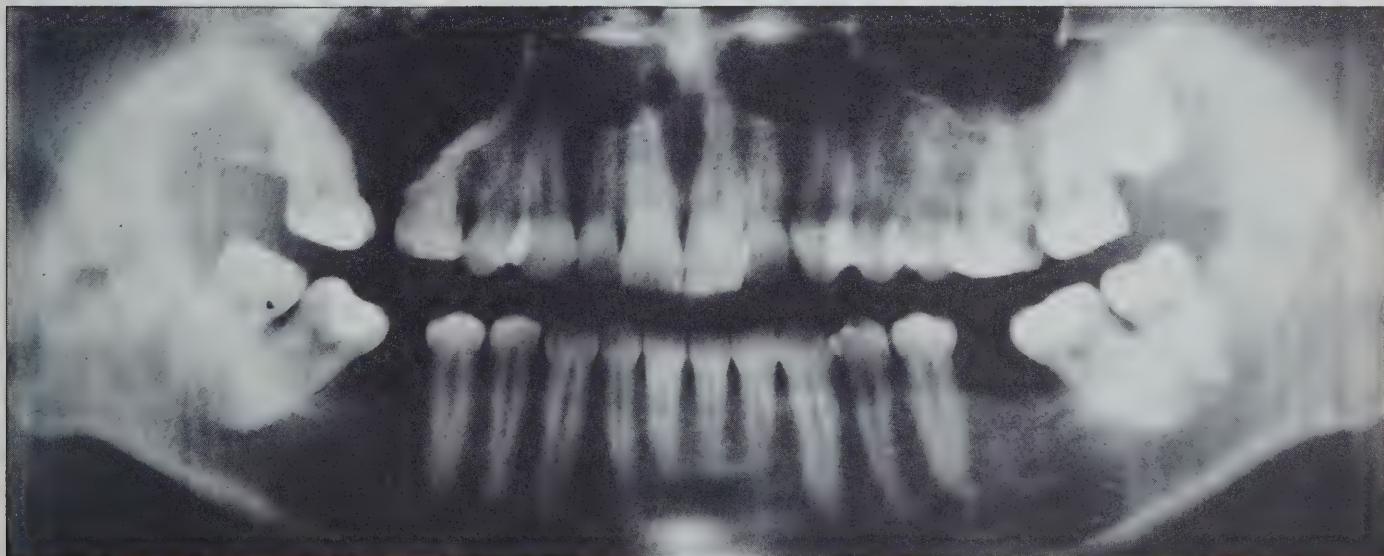


Figure 1: Panoramic radiograph of the lesion in the maxillary right quadrant. Minute calcifications and an unerupted tooth are present.



Figure 2: Lateral radiograph showing the anterior and posterior extent of the lesion. The unerupted tooth resembles a bicuspid.

forty (40) years old with an equal sex predilection¹⁹. Two different types have been reported: intra-osseous and extra-osseous. The latter representing less than 5 per cent of the total number of cases¹⁷⁻¹⁹. The lesion is usually located in the premolar and molar regions with a mandibular to maxillary ratio of 2:1. Maxillary lesions are more often associated with extra-oral swelling. Approximately $\frac{2}{3}$ of the cases are associated with an unerupted or impacted tooth or teeth. The extra-osseous type occurs more frequently in the anterior region of the jaws and is not associated with an impacted tooth¹⁷.

The tumor is usually manifested as a painless mass slowly enlarging. However, patients may sometimes complain of pain, nasal stuffiness, epistaxis and headaches⁹⁻¹⁸.

The most common radiographic finding is a radiolucent area which resembles a dentigerous cyst. Initially, the lesion appears well defined and unilocular, but it may become poorly defined, multilocular and have a honeycombed like appearance. Characteristically, and as the name implies, areas of calcification are usually seen within the tumor. However, the latter, may at times not be evident on X-Rays. Entities which produce well defined radiolucencies containing radiopaque foci that may be located pericoronally include fibro-osseous lesions, calcifying odontogenic cyst, adenomatoid odontogenic tumor, and post-surgical calcifying bony defect.

Histologically, several features are noted: namely, sheets of polyhyal epithelial cells with well defined cellular borders that show distinct intercellular bridges. The epithelial cells and nuclei are usually polymorphic with prominent nucleoli.

Mitotic figures are rarely seen. Within the sheets of epithelial cells are circular areas

filled with a homogeneous substance described as amyloid^{7-11,12}. Many cells are filled by calcifying material in the form of concentric Liesegang rings⁶⁻⁸⁻¹⁰⁻¹². Sometimes, there is considerable connective tissue stroma.

Methods of treatment have ranged from simple enucleation or curettage (shelling) to hemimandibulectomy or hemimaxillectomy. Recurrences are infrequent. One review of the literature stated that 113 cases had been reported since its original description and that it accounted for approximately 1 per cent of all odontogenic tumors and odontomes⁶. The treatment of choice for the intra-osseous type is marginal resection with a rim of normal tissue to avoid a recurrence. A radical resection or hemisection of the maxilla is unwarranted. Simple enucleation is the method of treatment for the extra-osseous type as no connection between tumor and jaw could be demonstrated¹⁷.

Case Report:

A 35-year-old caucasian male was referred to the department of Oral and Maxillo-Facial Surgery by his dental practitioner, for assessment of a large radiolucent area seen on the panogram. He consulted because of a swelling he noticed in the right maxillary vestibular area causing a slight facial asymmetry. The patient thought that the lesion had been present for a certain time but that lately, he had begun to notice a little pain upon pressure on the right side of the nose. He also mentioned a difficulty in breathing from the right nostril. A careful medical history and examination revealed an incident in which the patient had received a severe blow on that side of the face at a young age. Otherwise, it was non-contributory. The family history for a similar lesion was negative. The intraoral examination revealed a firm buccal mass of approximately 3 cms. in the maxillary right premolar and molar areas. Teeth 15-16 and 18 were missing, tooth 55 was retained. All the teeth in the area were vital. The surrounding soft tissues were normal. Regional lymphadenopathy was not present.

Radiographically, a pear-shaped unilocular lesion well demarcated and measuring 4×4 cms. was seen. It extended anteriorly to the region of the first premolar, posteriorly well into the sinus and superiorly to the floor of the orbit.

Retention of tooth 55 whose roots are resorbed is noted, tooth 17 seemed to have its roots intact but slanted distally. A tooth resembling a premolar was present in the supero-posterior portion of the lesion. Several areas of calcification were noted within the radiolucent mass.

On the third of October, 1985, utilizing

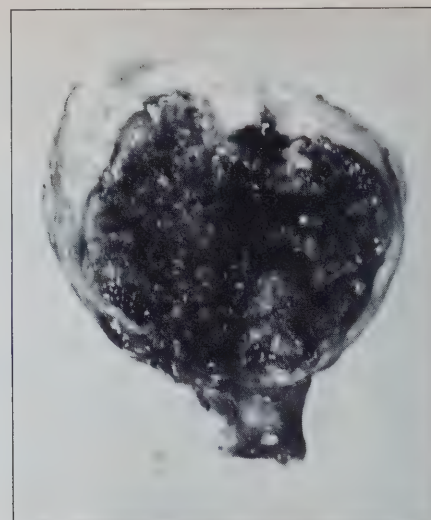


Figure 3: Gross appearance of the tumor which measured 3.5 × 2.5 cms.

local anaesthesia with Carbocaine 2 per cent and Neocobefrin 1:20,000 complimented with Marcaine 5 per cent and Epinephrine 1:200,000, a large mucoperiosteal flap was raised by means of blunt and sharp dissection, the buccal plate of bone was exposed, which was intact, but very thin. Osseous fenestration was performed, and the area suctioned, but no liquid was found except for minimal bleeding. After enlarging the osseous fenestration, a mass of tissue was encountered which was very thick and resembled a cyst. We were then able to encircle the whole lesion that appeared much too thick to be a cyst. Finally we freed all the insertions and enucleated the whole lesion completely. A protuberance was noted on its superior aspect, which was tooth 15. On careful inspection of the cavity, there was a space measuring more than 4 cms. in diameter and a perforation of the maxillary sinus throughout its whole distal region. The walls of the cavity had no connections with the tumor. We irrigated amply, repositioned the soft tissues, and closed the area with 4-0 Dexon sutures. The specimen was immediately sent to the pathologist for examination. A frozen section was done and a Pindborg tumor was suspected, and later confirmed.

Macroscopic Examination

The specimen was a smooth-surfaced ovoid cystic formation, measuring 3.5 × 2.5 cms. When opened, the crown of a tooth was in the lumen and measured 20×7 mms.

The lumen had no liquid but was mostly occupied by a reddish granular substance.

Microscopic Examination

The microscopic examination of the tissues revealed a benign cystic neoplastic formation. The internal epithelial lining was

of the squamous type and arranged in clusters of polyhedral cells with eosinophilic cytoplasm in large aggregates supported by connective tissue stroma. Intercellular bridges were well apparent. The nuclei were generally uniform in size and shape but some were larger and hyperchromatic. Cellular division was practically non-existent. Small ring-like calcifications of Liesegang were seen within the epithelium and connective tissue but in the latter, they took a rather stretched trabecular form, which resembled cementum, or even bone. On one section, stained with Congo Red, there was the presence of a little amyloid substance in the connective tissue stroma, especially perivascularly. One should also note that this neoplastic lesion was well demarcated without any important infiltration of the connective tissue lining. The lesion was identified as being intra-osseous, originating from the right maxilla and diagnosed as being a calcifying epithelial odontogenic tumor of Pindborg.

Follow-up

To date, almost one year post-op, the patient has had no complications and radiographs taken on September 12, 1986, showed healing of the osseous defect.

Summary and Conclusion

The calcifying epithelial odontogenic tumor is a rare tumor. It is often wrongly diagnosed as ameloblastoma clinically and radiographically. However, the pathologic diagnosis is generally not difficult.

The case described in this report supports the view that this tumor occurs within the epithelium surrounding retained teeth. The removal of these teeth at an early stage is therefore preferable to prevent neoplastic changes.

After surgical enucleation of the lesion, recurrences are infrequent but a careful follow-up for at least five (5) years is necessary.

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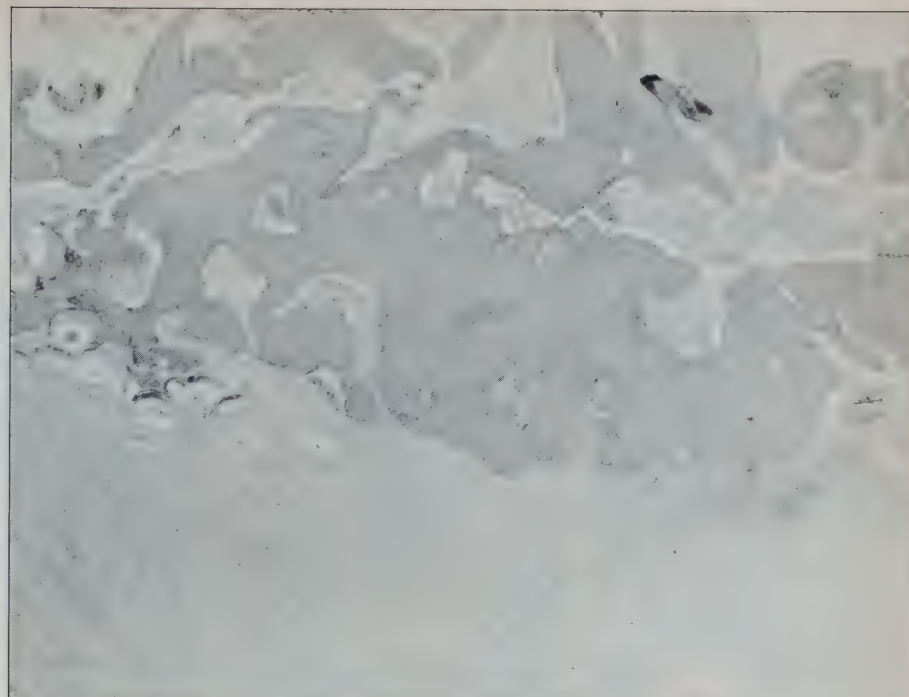


Figure 4: Microscopic view of the tumor showing sheets of epithelial cells and calcified bodies (hematoxylin-Eosin stain) (Mag x 25)

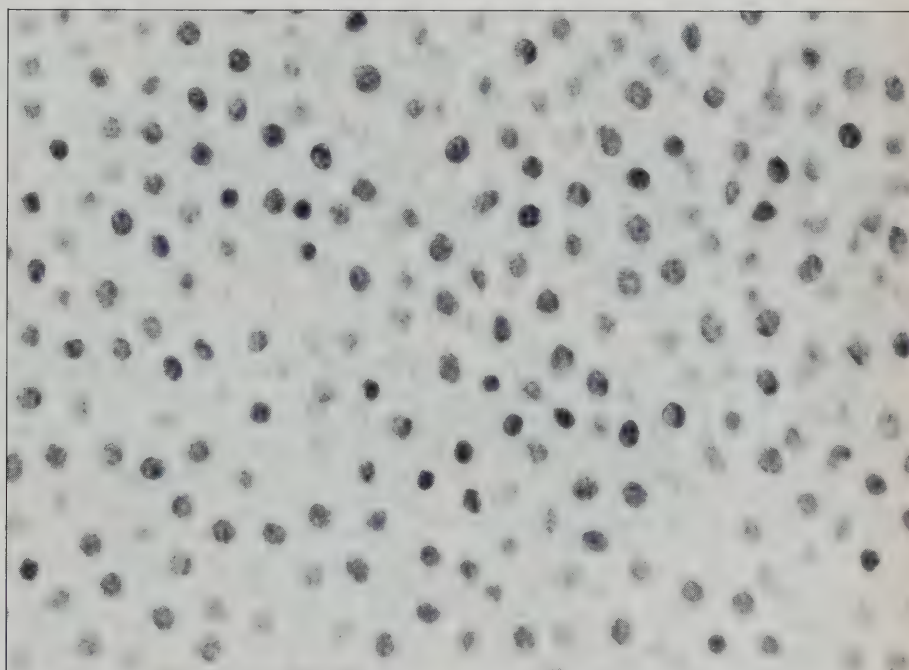


Figure 5: High power view of epithelial cells with vesicular eosinophilic cytoplasm. Cellular division is not seen. Intercellular bridges are present but not evident. (hematoxylin-Eosin stain) (mag x 400)

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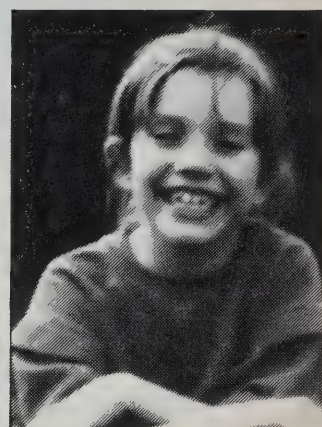
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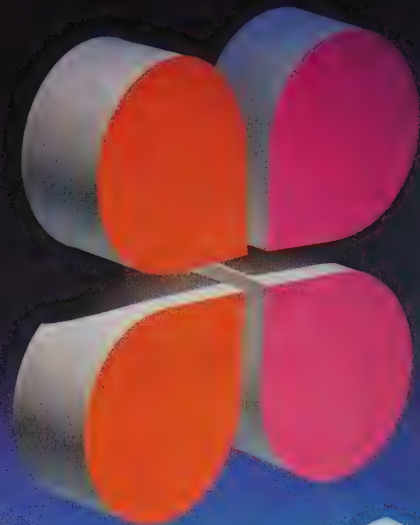
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PROBLEMS ASSOCIATED WITH EDENTULISM AMONG THE ELDERLY

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SUMMARY

This literature review examines several types of problems associated with edentulism. More precisely, it deals with oral health problems, inadequate nutrition and gastro-intestinal disorders among the elderly, 65 years of age and over, caused by the wearing of non-functional complete dentures. The effects of edentulism or the wearing of unsatisfactory dentures on the social behaviour of the elderly are also reviewed.

Key words: *Gastro-intestinal disorders, dietary habits, the elderly, complete dentures, social behaviour.*

RÉSUMÉ

Cette revue de littérature examine plusieurs types de problèmes associés à l'édentation complète. Plus spécifiquement, elle traite de problèmes bucco-dentaires, de nutrition inadéquate et de troubles gastro-intestinaux engendrés par le port de prothèses complètes non fonctionnelles chez les personnes âgées de 65 ans et plus. Enfin, nous verrons dans quelle mesure l'absence de prothèses ou le port de prothèses inadéquates a un effet sur le comportement des personnes âgées.

Introduction

An epidemiological study conducted across the province of Quebec in 1980-81 showed that 72 per cent of the elderly 65 years of age and over were edentulous¹. This situation is similar to that found elsewhere in Canada^{2,3} as well as in other countries^{4,5}. The rate of edentulism is higher among women, among less educated persons, and among those living in an institution or living in municipalities of less than 100,000 inhabitants^{1,6}.

This study¹ also brought out the fact that 64.7 per cent of persons 65 years of age and over have two complete dentures. Half of the appliances examined were judged unsatisfactory, the degree to which they were unsatisfactory increased with the age of the dentures. It is also noted that more than 60 per cent of the dentures were at least 10 years old. The poor fit of the dentures was the main problem observed⁷. In addition, among the edentulous, 16 per cent did not have dentures or did not wear them⁸.

Despite the rate of edentulism and the high percentage of elderly persons wearing dentures, up to now little attention seems to have been given to the problems these people can encounter. Yet, their dental con-

dition, if it is unsatisfactory, can have an impact on many aspects of their daily lives and, as a result, affect the quality of their lives, which is often already jeopardized by different health problems and poor economic conditions.

According to the literature available, it would seem that the wearing of non-functional dentures among the edentulous elderly has repercussions on their oral health, diet, digestion, as well as their social behaviour. The first three aspects have been documented the most.

Oral Health Problems

The wearing of dentures and, more specifically, the wearing of unsatisfactory dentures can cause oral health problems that, in turn, are likely to cause an altered choice of food among the elderly.

1. Alterations in the Oral Mucosa

To a large extent, the wearing of unsatisfactory dentures is responsible for the ailments of the oral mucosa found among the subjects of the Quebec study mentioned above. Stomatitis, hyperplastic tissue and ulcers were the most frequent problems¹.

2. Oral Discomfort

According to a study done in the United States, about one third of the denture wearers report soreness in their mouths

where the dentures rubbed⁹. The discomfort experienced while chewing is more common with the lower denture^{10,11} and it increases with age¹¹.

3. Alteration in Taste and Smell

The senses of taste and smell decrease with age because of a degeneration of the taste buds and smell receptors¹². The wearing of dentures also leads to an alteration in the perception of taste. A study of 46 partially or completely edentulous subjects showed that one third of the denture wearers had suffered a permanent loss in their sense of taste following the insertion of their appliance¹³. Two other studies arrived at similar conclusions^{14,15}. The reduction in the acuteness of taste, associated with age and the wearing of dentures, could have an impact on the choice of food.

4. Chewing Problems

Compared to those with natural teeth, denture wearers have been noted to have a reduced masticatory efficiency (objective or perceived). This phenomenon is found among both the elderly^{16,17} and adults of all age groups^{15,18,19}. The masticatory performance of denture wearers has been evaluated at only 12 per cent of the normal performance²⁰. The authors do not mention, however, if the performance studied here is equivalent to the optimal performance for eating and digestion.

In contrast, one study produced conflicting results²¹: fewer denture wearers reported chewing problems than did those with natural teeth. However, this study was not concerned with masticatory efficiency but with self-perceived chewing problems.

5. Chewing Ability Compared with the Quality of the Dentures

When only denture wearers are considered, chewing ability (objective or perceived) increases with the quality of the denture^{16,17,22}. In one study this relationship was not observed but the authors tested only a very small number of subjects — ten denture wearers compared to ten individuals with their natural teeth. In addition, this study failed to show that biting force varies with the quality of the denture, except that it was observed to be greater among those with natural teeth²³.

Altered Choice of Food

Diet assessment among the elderly shows that their diet is often inadequate. The lack of teeth has been considered as one of the factors responsible for this situation²⁴. Several national studies report caloric intake inferior to the recommended level among the over 65 group^{25,26}. In several studies, the consumption of calcium, iron and thiamine is found to be inadequate^{27,28}. In addition,

malnutrition is involved in the etiology of several illnesses among the elderly²⁹.

1. The Use of Dentures and the Choice of Food

Chewing problems related to the wearing of dentures, and more specifically, to the wearing of unsatisfactory dentures, would seem to influence the quality of the diet because of the difficulty in chewing certain solid foods⁹. Diet selection has been influenced by mastication efficiency among the elderly¹⁶.

The examination of the diet of 700 edentulous Australians, two-thirds of them over 60, revealed that 25 per cent had an unsatisfactory diet¹¹. Solid foods posed the most problems. Some foods were avoided because they had a tendency to slip under the dentures or were too difficult to chew.

In addition to determining the choice of food, certain authors proceeded with an evaluation of the nutrients ingested in relation to the type of teeth: denture wearers were compared to those with natural teeth. Thus, in a sampling of 368 seventy-year-old Swedes, the proportion of those with insufficient dietary intake of protein, iron, thiamine, and riboflavin was greater among the denture wearers²². Neill³⁰ found that denture wearers consume more calories in the form of carbohydrates and fat than subjects with natural teeth.

A correlation is also observed between self-perceived chewing ability and several predictors of nutritional status: those with chewing problems have a lower provision in calories and consume fewer proteins and more carbohydrates²¹.

There is no unanimous opinion about the association between nutritional variables and teeth. Baxter³¹, Gordon et al²¹ and Hartsook¹³ did not observe any difference in terms of nutrients in the composition of the diet of denture wearers and those with natural teeth.

2. The Quality of Dentures and the Choice of Food

The link between the composition of the diet and the quality of dentures has been studied very little. Heath³² noted little variation in food selection with regard to the quality of the dentures among 75 retired persons, who were all suffering to a certain degree from a physical handicap but had the benefit of a home-delivery meal service twice a week.

In a study conducted among 53 army pensioners living in a hospital environment, a positive association was noted between the quality of dentures and the masticatory performance¹⁷. A more efficient masticatory performance was associated, but not significantly, with improved dietary intake (in terms of carbohydrates, proteins, fats, and calories).

3. The Role of Socio-Demographic Factors in the Relationship between Diet and Dentition

Socio-economic factors would seem to have a major importance in the origin of nutritional problems among the elderly. Poverty and low education level, with which is associated a lack of nutritional knowledge, would seem to be the principal factors³³. It is important, therefore, to take into consideration the role of socio-economic factors on the relationship between dentition and the choice of food, something which few researchers have done up to the present.

Age, sex, marital status, and the fact of living alone are the factors for which distinctions in the composition of the diet have been noted in relation to dentition.

Hartsook¹³ noted that, with age, there is a decrease in the quality of the diet among 46 partially or completely edentulous subjects. The differences in the composition of the diet in relation to dentition seem to be more pronounced in men than in women^{11,30}; this is true even after controlling the confounding socio-economic factors such as the level of education, marital status and family income²².

Ettinger¹¹ notes a more satisfactory diet among married men; a situation that was not found among married women. Living alone was also associated with a greater caloric and protein intake in a sample of men with an average age of 86; however, there was no correlation between the fact of living alone and the fact of having an insufficient dietary intake²¹.

According to Baxter³¹, socio-economic factors such as social status and income would seem to play an even more important role than dental status with regard to the nutritional status of the elderly. The level of education would seem to be the best indicator of social status because it is determined early in adulthood and varies little afterwards whereas job and income can vary³⁴.

Digestive Problems

Among the elderly, digestive problems lead to a high level of use of medical services. Thus, 27 per cent geriatric admissions are due to gastro-intestinal diseases and 42 per cent of non-prescription drugs are for gastro-intestinal problems³⁵. The data collected by the Health Canada study reveal that 7.1 per cent of elderly persons 65 years of age and over consumed medication for gastric disorders in the two days preceding the study and 10.8 per cent took laxatives³⁶. Finally, the prevalence of digestive disorders among those 65 and over in Canada in 1978-79 was established at 10 per cent³⁷.

The insufficient grinding up of food caused by a reduced chewing ability and a deficient food intake would seem to be the likely cause of digestive problems among individuals who already have, because of advanced age, a reduction in salivary secretions and in the production of the digestive enzyme amylase; this renders the breaking down of starchy foods more difficult³⁸. Certain foods, such as those containing proteins, necessitate more chewing than other foods in order to be digested³⁹.

Digestive problems related to an inefficient masticatory apparatus have been the object of a few studies, but they do not seem to have been examined in relation to the quality of dentures.

An experimental study carried out on young and old rats did not show that impaired mastication had an effect on the gastro-intestinal system⁴⁰. The older animals having an impaired mastication following the extraction of the posterior teeth lost weight, however, even though they ate more, but the authors could not explain this result.

Two studies conducted on small populations of hospital patients do not show a link between low masticatory efficiency and unspecified gastro-intestinal symptoms¹⁷ or certain symptoms such as anorexia, nausea, vomiting, and epigastric distress⁴¹.

A study was conducted among 3,673 non-institutionalized people aged 65 and over to investigate indigestion problems over a 12-month period and the history of ulcers. The degree of digestive problems did not correlate in any way with the number of natural teeth⁹.

All things considered, there are few documents pertaining to digestive problems related to dentition. The relationship of these problems with the quality of dentures among the elderly does not seem to have been studied even though it is often mentioned that dental problems and impaired mastication could affect the gastro-intestinal system^{24,42}.

Social Handicap

Psychosocial problems have been rarely taken into consideration in the study of the dental needs of the elderly. Nevertheless, the absence and the non-use of dentures as well as the problems associated with wearing unsatisfactory dentures (problems of retention, stability, mastication, etc.) can constitute a handicap leading to a restriction in social contacts that are already fewer during this period of life. An unesthetic denture, or one that is likely to drop when a person speaks, laughs or eats, can, therefore, have an impact on the social behaviour of the elderly.

In a study conducted among 254 persons

65 and over in the United Kingdom, Smith¹⁰ notes that 20 per cent of the denture wearers were embarrassed by their denture dropping during social contact. This same feeling of embarrassment can be caused by the unesthetic appearance of the dentures or by difficulties in oral expression⁵. In this study, 9 per cent had esthetically unsatisfactory dentures. For some subjects, difficulty in chewing was also a source of embarrassment; 9 per cent felt uncomfortable eating in front of other people and 41 per cent claimed that they took a long time eating. The authors concluded that satisfactory teeth (natural or artificial) constitute an important factor in feeling socially accepted; and they also contribute to the continued well-being and mental health of the elderly.

Hunt *et al*⁹ compared denture wearers to people with their natural teeth in a sample of 3,673 people 65 years and over living in Iowa. The proportion of those claiming to feel embarrassment during social contact because of their dentures or their dental condition is 5 per cent in each group. It must be noted that the proportion of dentures judged unsatisfactory was not reported. In addition, 32 per cent of people wearing two dentures and 22 per cent of people wearing one reported their dentures were loose and would sometimes rock or slip. These inconveniences, however, seemed to be accepted as only 7 per cent of the completely edentulous people felt they needed to see a dentist for care.

Conclusion

From this literature review, it is seen that the wearing of dentures, and more specifically, the wearing of unsatisfactory dentures, may be responsible for a series of problems and their perpetuation among the elderly. These may include problems in oral health, diet, digestion and social behaviour.

A recent review of research on nutritional problems due to the absence of natural teeth⁴³ brings out the weaknesses of the studies done up to the present time: 1) most of the studies did not carefully control social factors and the health factors affecting nutrition and the choice of food; 2) the method for evaluating the diet was often inadequate, when it was reported; and 3) extrapolation based on the study of animals is not always appropriate due to the wide variety of choice and preparation of food available to people.

Studies on the elderly are often carried out using small sample populations. Furthermore, these populations are sometimes from a specific segment of the elderly population such as the institutionalized elderly. Conclusions, therefore, about the general population of the elderly based on these studies should be made with caution.

Finally, dietary and digestive problems have been studied primarily in relation to the presence or absence of dentures rather than in relation to the quality of the dentures even though studies have shown a large proportion of dentures are considered unsatisfactory.

The obvious conclusion from the current literature is that we really do not know what problems can be directly attributed to loss of teeth or use of poorly functioning dentures. Since many elderly patients do have problems, more well-designed clinical studies are necessary to compare the gastro-intestinal disorders and the choice of food of the completely edentulous elderly without functional dentures with those of a control group of people who have satisfactory dentures.

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Announcements

DECEMBER/DÉCEMBRE

December 5-8: American Academy of Oral Medicine, Washington, DC. Contact: Dr. N. Ross, 1 Lynn Drive, Randolph, NJ 07869.

December 28-31: Indian Dental Association Conference, India. Contact: Indian Dental Association, M75 Connaught Circus, New Delhi, 110001, India.

December 1986 – May 1987: Acupuncture Analgesia hands on course (and also regular clinical acupuncture training courses) for dentist groups anywhere in Canada. Clinical Specialist trained in leading world centre in medical/dental surgery acupuncture analgesia. Also analgesic services available for Ottawa-Hull region. Contact: Mr. Henry Jayakody F. Ac. F (SL), H-N. Ac. (Japan). Licenced Acupuncture practitioner (USA) LL.B (Osgoode Hall). Ontario Clinical Acupuncture Centre, 877 Sheppard Rd., Ottawa. Tel. 613-748-0080.

JANUARY/JANVIER 1987

January 3-4, 1987: Academy of Dental Materials Annual Meeting, Walt Disney World Conference Centre, Orlando, Florida. Contact: Sybil Greener, Executive Secretary, Academy of Dental Materials, Dept. of Biological Materials, Rm. 10-019, Northwestern University Dental School, 311 E. Chicago Ave., Chicago, Ill. USA 312-642-9570.

January 5-8, 1987: The Indian Association for Dental Research Workshop-cum-Conference on Fluoride and Dental Health. Madras, India. Contact: Prof. M. Rahmatulla, Convenor, International Workshop-cum-Conference on Fluoride and Dental Health, Dental Dept. Government Kilpauk Medical College Hospital, Madras, 600 010, India.

January 5 – April 6, 1987: UCLA Extension Dental Refresher Program, Los

Angeles, California. Contact: Continuing Education in Health Sciences, UCLA Extension, 10995 Le Conte Avenue, Room 614, Los Angeles, California, 90024, (213) 825-9187.

January 10-24, 1987: International Dental Foundation's 16th International Alpine Dental Conference, Courchevel 1850 France. Contact: International Dental Foundation, 24 Cadogan Square, London, SW1X 0JP.

January 15-18, 1987. 12th Annual Yankee Dental Congress, Boston, Mass. Largest continuing education event in New England: "Passport to the Future." Contact: The Massachusetts Dental Society, 83 Speen Street, Natick, Mass. 01760-4125, or, telephone (617) 651-7511.

January 17-18: American Academy and Board of Head, Face and Neck Pain and TMJ Orthopedics meeting, Washington, D.C. Contact: American Academy office, Medical Towers Building, Suite 803, 255 S. 17th St. Philadelphia, PA 19103.

January 29-31, 1987: Miami Winter Meeting, Hyatt Regency Miami. Contact: Dotti DuBreuil, Coordinator, Miami Winter Meeting, 420 South Dixie Highway, Coral Gables, Florida, 33146, 305-667-3647.

January 30-31, 1987: Clinical Research Associates' Dentistry Update, Park City, Utah. Course given by Dr. Gordon J. Christensen. Contact: Clinical Research Associates, 3707 North Canyon Road, Suite 6, Provo, Utah, 84604.

FEBRUARY/FÉVRIER 1987

February 8-12: Arab Health '87 health care exhibition. Dubai, United Arab Emirates. Contact: Arab Health '87, c/o Fairs and Exhibitions Limited, 51 Doughty St., Gray's Inn, London, WC1N 2LB United Kingdom. Telephone: 01-831-8981.

February 15-18, 1987, 122nd Chicago Dental Society Midwinter Meeting. Chicago Hilton & Towers. Contact: Chicago Dental Society, 30 North Michigan Avenue, Chicago, Ill. 60602. Or, telephone (312) 726-4076.

February 21-28: Virgin Islands Dental Association Convention. Topics include: Endodontics, TMJ, Orthodontics, Oral Medicine. Spouses' program. Contact: Dr. Bob Brandon, 85 Lonsdale Dr., London, Ontario, N6G 1T4, 519-657-3368 (residence.)

MARCH/MARS 1987

March 6-7, 1987: Bytown Dental Study Club presents Canadian Practice Management Strategies, Four Seasons Hotel, Ottawa, Ontario. Fee: \$360 for dentists, \$85 for first office personnel, \$60 for second or more office personnel. Instructors: Dr. Sidney Zucker and Mr. Symon Zucker. Contact: Dr. G. Wexler (613) 731-2149.

March 19-21, 1987: CATCH '87: Computer Applications to Canadian Health. Organized by the College of Family Physicians in Canada. Hilton Harbour Castle, Toronto, Ont. Contact: CATCH '87, 4000 Leslie St. Willowdale, Ont. M2K 2H9 416-493-7638.

March 28 – April 4: International Dental Foundation's 17th International Alpine Dental Conference, Courchevel 1850 France. Contact: International Dental Foundation, 24 Cadogan Square, London, SW1X 0JP.

APRIL/AVRIL 1987

April 23-26, 1987: California Dental Association's Spring Scientific Session, Anaheim, California. Contact: California Dental Association, 818 "k" Street Mall, Post Office Box 13749, Sacramento, California, 95853.

April 25, 1987: Ontario Academy of General Dentistry presents New Materials and Recent Advances in Restorative Dentistry, Posterior Composites, Algonquin College, Ottawa, Canada. Instructors: Drs. Ron Jordan and Mike Suzuki. Enrollment limited to 20 dentists. Contact: Dr. John Miner (613) 235-8544.

MAY/MAI 1987

May 7-8, 1987: The Maurice and Gabriela Goldschleger School of Dental Medicine of Tel Aviv University present "New Wave Endodontics", Tel Aviv University, Israel. Contact: Dr. Hart J. Levin, 2006 Bathurst Street, Toronto, Ontario, Canada, M5P 2W6, Telephone: (416) 781-2751 or contact: Dr. Colin Gorfil, The Maurice and Gabriela Goldschleger School of Dental Medicine, Tel Aviv University, Ramat Aviv 69978, Israel, Telephone: (03) 420551.

May 10-13, 1987: Ontario Dental Association 120th Annual Spring Meeting, Sheraton Centre Hotel, Toronto. Contact: ODA headquarters c/o Diana Thorneycroft, 234 St. George Street, Toronto, Ont. M5R 2P1.

May 16-17: International Association for Orthodontics Western Canada Section annual spring meeting. Vancouver, B.C. Four Seasons Hotel (tentative). Contact: Dr. Timothy H. Tam, Pediatric Dentistry, 301-745 West Broadway, Vancouver, B.C. V5Z 1J6, 604-872-0444.

May 24-28, 1987: CDA/ODQ Convention, Montreal, Quebec. Contact: Canadian Dental Association, 1815 Alta Vista Dr. Ottawa, Ont. K1G 3Y6.

JUNE/JUIN 1987

June 7-11, 1987: 11th Congress, International Association of Dentistry for Children, Toronto, Ont. Contact: Secretariat, 11th Congress, IADC, Dept. of Pedodontics, Faculty of Dentistry, University of Toronto, 124 Edward St. Toronto, Ont. M5G 1G6.

June 18-21, 1987: University of British Columbia and the College of Dental Surgeons of B.C. 25 year celebration and 1987 Convention. Contact: College of Dental Surgeons of B.C., 1125 West 8th Ave., Vancouver, B.C. V6H 3N4, 604-736-3621.

June 28-July 1, 1987: Pacific Dental Conference sponsored by the Pacific Dental Federation and the Alberta Dental Association, Banff Springs Hotel, Banff, Alberta. Contact: Dr. J. William Blair, 621 Harald Building, Calgary, Alta., T2P 0W7.

June 28-July 1: Conjoint Alberta Dental Association - Pacific Dental Federation Conference, Banff, Alberta. Contact: Dr. G.P. Greeves, 401, 4600 Crowchild Tr. N.W., Calgary, Alta. T3A 2L6, 403-247-2225.

JULY/JUILLET 1987

July 1, 1987: Applications are being accepted for the Postdoctoral Program Dental Diagnostic Science at the University of Texas Health Science Center, at San Antonio, for the class beginning July 1, 1987. Contact: Office of the Associate Dean for Advanced Education, The Dental School, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Dr., San Antonio, Texas, 78284.

July 4-8, 1987: Canadian Paediatric Society and l'Association des Pédiatres de la Langue Française conjoint meeting, The Queen Elizabeth, Montréal, Canada. Contact: Secretariat: Canadian Paediatric Society, Children's Hospital of Eastern Ontario, 401 Smyth Road, Ottawa, Ontario, K1H 8L1, telephone: (613) 737-2728.

SEPTEMBER/SEPTEMBRE 1987

September 24-25, 1987: British Society of Oral Medicine meeting, in the Royal College of Surgeons of England, London, England. Contact: Dr. David Wray, British Society of Oral Medicine, Dept. of Oral Medicine and Oral Pathology, High School Yards, Edinburgh, Scotland, EH1 1NR.

OCTOBER/OCTOBRE 1987

October 10-15, 1987: American Dental Association Annual Convention. Las Vegas, Nevada. Contact: ADA, 211 E. Chicago Ave., Chicago, Ill. USA 60611.

October 24-30, 1987: 85th Annual World Dental Congress of the FDI. Buenos Aires, Argentina. Contact: Dr. R.H. Lemme, Congressos Internacionales, SA, Moreno 584-9e, Piso (1091) Buenos Aires, Argentina.

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ONTARIO—Associate/Partner Required: Very busy practice in South-Western Ontario. Will consider part-time to start. Apply to CDA Box No. 2342.

ONTARIO—Oral and Maxillofacial Surgeon: Associateship available in large metropolitan area with potential for partnership. Excellent opportunity. Contact Box 2335.

SASKATCHEWAN—Dental Technician — College of Dentistry University of Saskatchewan: A dental technician position is available immediately at the University of Saskatchewan, College of Dentistry. Typical duties include the fabrication of cast restorations, construction of teaching aids, cooperating in research projects and demon-

stration of equipment and techniques. Minimal qualifications include grade twelve and certification in dental technology. (Several years experience in the field is preferred, but not essential). Salary is dependent on experience and skill. Salary Range (\$2,057. – 2,815. monthly). Submit applications to: Dr. J.K. Sutherland, Dental Clinic, University of Saskatchewan, Saskatoon, Sask. S7N 0W0.

SASKATCHEWAN—UNIVERSITY OF SASKATCHEWAN — COLLEGE OF DENTISTRY — ORAL PATHOLOGY: A full-time academic position is available July 1, 1987. Responsibilities include teaching of undergraduate students and residents, research and administration of a histopathological diagnostic service. Completion of an accredited program in Oral Pathology is required. Salary and rank commensurate with qualifications and experience. In accord with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Letter of application and curriculum vitae, together with three names for reference purposes should be sent to: Dr. D.L. Singer, Head, Department of Diagnostic & Surgical Sciences, College of Dentistry, University of Saskatchewan, SASKATOON, Saskatchewan, Canada, S7N 0W0.

SASKATCHEWAN—UNIVERSITY OF SASKATCHEWAN — COLLEGE OF DENTISTRY: Applications are invited for two full-time positions (one effective immediately, one effective July 1, 1987) in the Division of Removable Prosthodontics, Department of Restorative and Prosthetic Dentistry. Graduate qualifications at the Masters level in Prosthodontics is desirable. Responsibilities would include the didactic and clinical teaching of undergraduate students. Research and scholarly in related areas is expected. Successful candidates could also be considered for the Headship of the Division of Removable Prosthodontics. Salary and rank commensurate with qualifications and experience. In accordance with Canadian Immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. Interested applicants should send curriculum vitae and related documentation with at least three names for reference purposes to: Dr. J.K. Sutherland, Head, Department of Restorative and Prosthetic Dentistry, College of Dentistry, University of Saskatchewan, SASKATOON, Saskatchewan, Canada, S7N 0W0.

OREGON—Endodontic Program: Applications are being accepted for a two-year certificate program in Endodontics beginning

July 1, 1987. A Master of Science degree is also available. The program is fully accredited and at the present time, tuition is waived. The program includes a significant experience in IV sedation and surgery. Applications will be accepted until December 31, 1986. For additional information contact Dr. F. James Marshall, Department of Endodontology, Oregon Health Sciences University, 611 SW Campus Drive, Portland, Oregon 97201.

HONG KONG—UNIVERSITY OF HONG KONG — READER/SENIOR LECTURER IN CHILDREN'S DENTISTRY AND ORTHODONTICS: Applications are invited for a Readership/Senior Lectureship (equivalent to Professor and Associate Professor respectively in the US) in Children's Dentistry and Orthodontics, tenable from September 1987 on the retirement of the present incumbent, Dr. Peter Yen. Applicants should be suitably-qualified orthodontists and should possess a dental qualification registrable in Hong Kong and a postgraduate qualification in orthodontics, experience in teaching and supervision of postgraduate students in clinical and research activities are highly desirable. Annual salaries (superannuable) are on the scales: Reader HK\$542,160 (fixed); Senior Lecturer HK\$442,800-513,600 (6 points) (C\$1=HK\$5.70 as at September 16, 1986). Starting salary will depend on qualifications and experience. The University provides a comprehensive package of fringe benefits including housing at a rental of 7½% of salary, furniture, children's education allowance and passages to visit Hong Kong as well as generous long leave and medical benefits. At current rates the income tax will not exceed 17% of gross income. Further particulars and application forms may be obtained from the Secretary General, Association of Commonwealth Universities (Appts), 36 Gordon Square, London WC1H 0PF, or from the Appointments Unit, Registry, University of Hong Kong, Hong Kong. Enquiries about job responsibilities could be addressed to Professor Stephen Wei, Head of Department of children's Dentistry and Orthodontics, Prince Philip Dental Hospital, 34 Hospital Road, Hong Kong. Closes 31 January 1987.

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Dr. Max Goodson, Forsyth Dental Centre

Dr. Trevor Chin Quee, Dalhousie University

Dr. Ray Williams, Harvard University

Dr. Richard Ellen, University of Toronto

Course Director:

Dr. Eric Freeman, University of Toronto

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Faculty of Dentistry

University of Toronto

124 Edward Street

Toronto, Ontario M5G 1G6 Canada.

FULL TIME POSITION DIVISION OF PERIODONTOLOGY (Undergraduate Level) Faculty of Dentistry McGill University

The Faculty of Dentistry, McGill University, invites applications for a full-time tenure-track position as Director of the Division of Periodontics, available January 1, 1987.

The successful applicant will be responsible primarily for planning and coordination of the undergraduate teaching program of the Division. An active contribution to the Faculty's graduate program in Oral Surgery and the General Practice Residency Program will be required. The candidate will be expected to engage in research in Periodontics and/or related areas.

Candidates must have successfully completed graduate studies in Periodontics and should have several years of teaching experience. They must be eligible for licensure in the Province of Quebec.

Academic rank and salary will be commensurate with qualifications and experience. Private practice privileges are available.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

Applications, accompanied by a detailed curriculum vitae and two references, should be addressed to:

Dr. G. Weinlander, Chairman, Department of Clinical Dentistry,
Faculty of Dentistry, McGill University,
Strathcona Anatomy and Dentistry Building,
3640 University Street,
Montreal, P.Q. H3A 2B2

ORAL DIAGNOSIS FACULTY OF DENTISTRY UNIVERSITY OF TORONTO

The Faculty of Dentistry, University of Toronto, invites applicants for a full-time, tenure stream position in the Department of Oral Medicine and Pathology. Applicants should have post-graduate training in *Oral Diagnosis* and *Oral Medicine*.

Responsibilities will include the teaching of Oral Diagnosis, Treatment Planning and Oral Medicine on didactic and clinical levels. The successful candidate will be expected to participate in appropriate research and other scholarly activities. A demonstrated ability and experience in clinical dentistry and teaching is required, including work with the medically-compromised patient.

The successful candidate will be appointed at an academic rank and salary appropriate to his/her scholastic accomplishments. This advertisement is directed to Canadian citizens and permanent residents, and both women and men are encouraged to apply.

Applications or enquiries should be sent to:

Dr. Charles O. Munroe,
Faculty of Dentistry,
124 Edward Street,
Toronto, Ont.
M5G 1G6.

Closing date for applications is January 31st, 1987.

PROSTHODONTICS FACULTY OF DENTISTRY UNIVERSITY OF TORONTO

The Faculty of Dentistry, University of Toronto, invites applicants for a full-time, tenure stream position in the Department of Prosthodontics. Applicants should have post-graduate training in *fixed and/or removable prosthodontics*.

Responsibilities will include teaching of undergraduate and postgraduate prosthodontics, and participation in research and other scholarly activities. Evidence of experience and capability in teaching and research in clinical dentistry is requested.

The successful candidate will be appointed at an academic rank and salary appropriate to his/her scholastic accomplishments. This advertisement is directed to Canadian citizens and permanent residents, and both women and men are encouraged to apply.

Applications or enquiries should be sent to:

Dr. George A. Zarb,
Faculty of Dentistry,
124 Edward Street,
Toronto, Ont.
M5G 1G6.

Closing date for applications is January 31st, 1987.

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ORAL PATHOLOGY FACULTY OF DENTISTRY UNIVERSITY OF TORONTO

The Faculty of Dentistry, University of Toronto, invites applicants for a full-time, tenure stream position at the Assistant Professor level in the Department of Oral Pathology. Applicants should have completed a recognized postgraduate training program in oral pathology, and be eligible for certification in oral pathology in Ontario. In addition, he/she should have undertaken post-doctoral training in basic research, preferably in the areas of tumour cell biology or experimental carcinogenesis.

The successful candidate will be expected to participate in teaching at undergraduate and postgraduate levels and to conduct independent research in an area relevant to oral pathology.

This advertisement is directed to Canadian citizens and permanent residents, and both women and men are encouraged to apply.

Applications or enquiries should be sent to:

Dr. J.H.P. Main,
Faculty of Dentistry,
124 Edward Street,
Toronto, Ont.
M5G 1G6.

Closing date for applications is January 31st, 1987.

POSTE À PLEIN TEMPS DIVISION DE PARODONTOLOGIE (premier cycle)

Université McGill
Faculté de médecine dentaire

La Faculté de médecine dentaire de l'Université McGill est à la recherche d'un professeur adjoint de parodontologie; il s'agit d'un poste à plein temps, en vigueur le 1^{er} janvier 1987.

Le titulaire de ce poste sera chargé principalement de la planification et de la coordination, au niveau du premier cycle, dans la division de Parodontologie. Il devra prendre une part active au programme de deuxième cycle en chirurgie bucco-dentaire ainsi qu'au programme multidisciplinaire. Il devra également effectuer des recherches dans ces deux domaines. Le salaire sera fonction des compétences et de l'expérience du candidat.

Les candidats doivent avoir reçu une formation poussée en parodontologie et doivent avoir plusieurs années d'expérience dans l'enseignement. De plus, ils doivent être admissibles aux examens de licence de la province de Québec.

Conformément aux dispositions de la Loi canadienne sur l'immigration, cette annonce s'adresse aux citoyens canadiens et aux résidents permanents.

Veuillez faire acte de candidature aussitôt que possible et joindre à votre candidature un curriculum vitae et deux lettres de recommandation que vous voudrez bien adresser à:

Docteur G. Weinlander, directeur
Comité de recherche en Parodontologie,
Faculté de médecine dentaire,
Université McGill
3640, rue Université,
Montréal, Québec H3A 2B2

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- Oral Hygiene Skills Assessment — Gray AS et al (SA) 703-705.

- Strategies and Possible Solutions — Silver JG (A) 59-60.

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CALCIFYING EPITHELIAL ODONTOGENIC TUMOR (PINDBORG TUMOR): Review of the Literature and Case Report: Maranda G and Gourgis M (SA), 1009-1012.

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- Financial Support for Dental Treatment for Patients with Cancer in Canada — Main JHP (A), 908-911.
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- Periodontal Status of a Group of Canadian Adults — Hoover JN and Tynan JJ (SA) 761-763.

— The Practice of Dental Hygiene in Canada Report of the Working Group on the Practice of Dental Hygiene — Health and Welfare Canada (A) 192-197.

— Specialty Certification in Canada — Dunn WJ (A) 765-769.

CANADIAN ACADEMY OF ENDODONTICS: Dr. WC Weinstein elected new president (B) 111 (111).

— Dr. Herb Borsuk of Westmount, Que., named new President (B) 967 (967).

CANADIAN ACADEMY OF PEDIATRIC DENTISTS: Dr. Franklin Pulver elected new president. (B) 177 (177).

CANADIAN ACADEMY OF ORAL RADIOLOGY: Meeting in Halifax (B) 967 (967).

CANADIAN ACADEMY OF ORTHODONTISTS: New Executive Officers elected (B) 177 (177).

CANADIAN ACADEMY OF PERIODONTOLOGY: Elects Dr. Edward Chesko President (B) 807 (807).

CANADIAN ACADEMY OF RESTORATIVE DENTISTRY: Dr. Dan MacIntosh named new president. (B) 110 (110).

— Scientific sessions another good reason to visit Halifax (B) 576 (576).

CANADIAN ASSOCIATION FOR DENTAL RESEARCH: Midwest section holds inaugural meeting (B) 15 (14).

CANADIAN ASSOCIATION OF SPEECH LANGUAGE PATHOLOGISTS AND AUDIOLOGISTS: New name of Canadian Speech and Hearing Association (B) 649 (649).

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— CDA activities address occupational health hazards in dentistry — Blahut (N) 9 (9).

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— Manpower Symposium: see Manpower.

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— Report on the Committee on Salaried Dentists — Wright JN (A) 280-281.

— Dr. John Robertson new CDA president (N) 879 (879).

— The Role of Government — Bedford WR (A) 68.

— Sets up scholarship fund to honour Penny Waite (B) 650 (650).

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CANADIAN DENTAL ASSOCIATION CONFERENCE ON PRELICENSURE: CDA Conference on Prelicensure (February 24-25, 1986, Montreal) — Beagrie GS (A) 493-494.

— Prelicensure Conference Summary — Beagrie GS (A) 753-755.

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CANADIAN DENTAL SERVICE PLANS INCORPORATED: But I have 20 years Before I retire – Dennett PB (N) 257 (260).

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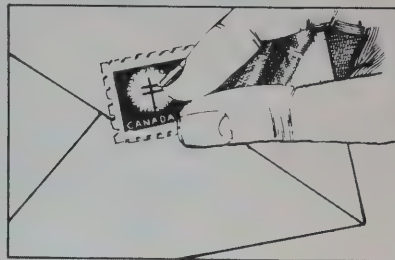
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*Afin de ne pas allonger inutilement les deux index, on a énuméré uniquement dans l'index anglais les articles parus simultanément dans la chronique bilingue **En bref** — **Briefly**. Pour chaque article, la page de la version française est indiquée entre parenthèses.*

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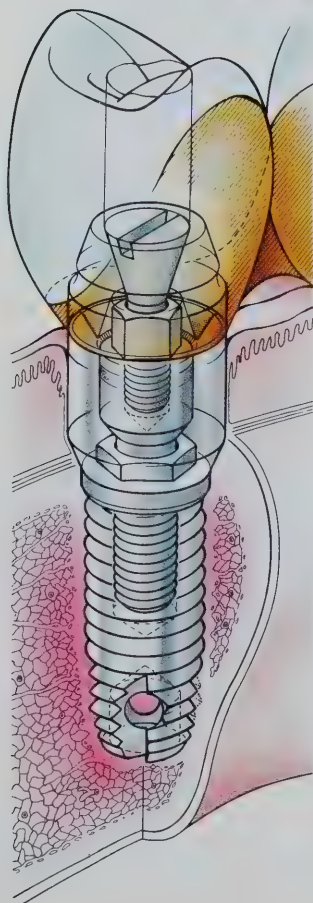


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